

RCRA RECORDS CENTER
FACILITY Ciba Geigy Corp
I.D. NO. RID00194323
FILE LOC. R-2
OTHER _____

Ciba

SEMIANNUAL MONITORING REPORT

**CIBA-GEIGY FACILITY
180 MILL STREET
CRANSTON, RHODE ISLAND**

MONITORING RESULTS

FOR

JULY - DECEMBER 2000

**CIBA SPECIALTY CHEMICALS CORPORATION
TOMS RIVER, NEW JERSEY 08754**



RECD
1-25-01
F.B.

SEMIANNUAL MONITORING REPORT

**CIBA-GEIGY FACILITY
180 MILL STREET
CRANSTON, RHODE ISLAND**

MONITORING RESULTS

FOR

JULY - DECEMBER 2000

**CIBA SPECIALTY CHEMICALS CORPORATION
TOMS RIVER, NEW JERSEY 08754**

| <u>TABLE OF CONTENTS</u> | <u>Page No.</u> |
|-------------------------------------|-----------------|
| 1.0 SUMMARY | 1 |
| 2.0 OBJECTIVE | 2 |
| 3.0 INTRODUCTION | 2 |
| 4.0 MEDIA PROTECTION STANDARDS | 2 |
| 5.0 SEMIANNUAL MONITORING RESULTS | 3 |
| 5.1 Hydraulic Monitoring | 3 |
| 5.2 Chemicals Of Concern Monitoring | 4 |
| 6.0 DISCUSSION OF RESULTS | 5 |
| 7.0 CONCLUSION | 6 |

LIST OF TABLES

| | |
|--|------------|
| Table 1 Media Protection Standards | 3 |
| Table 2 Monitoring Results - Chemicals Of Concern | 5 |
| Table 3 Upgradient Wells - Cumulative Results for Chemicals Of Concern | Appendix C |
| Table 4 Bulkhead Wells - Cumulative Results for Chemicals Of Concern | Appendix D |
| Table 5 In-River Wells - Cumulative Results for Chemicals Of Concern | Appendix E |

LIST OF FIGURES

| | |
|---|------------|
| Figure 1 Pre-Pump & Treat Potentiometric Surface Map | Appendix A |
| Figure 2 Potentiometric Surface Map October 3, 2000 | Appendix A |

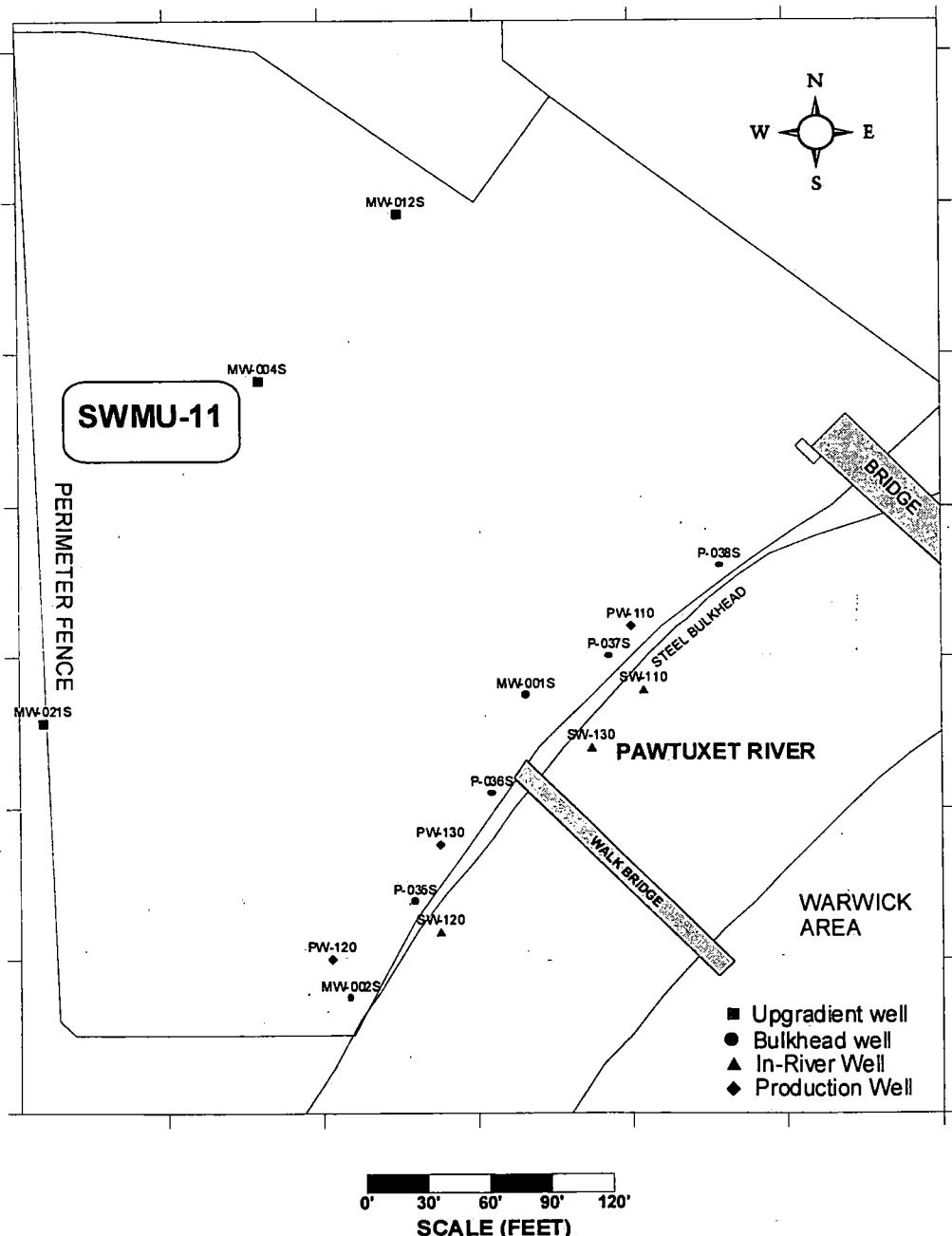
LIST OF APPENDICES

- Appendix A Tabulated Groundwater Elevation Data and Potentiometric contours**
- Appendix B Certificate of Analysis - R. I. Analytical**
- Appendix C Time-Series Graphs and Data for Upgradient Wells**
- Appendix D Time-Series Graphs and Data for Bulkhead Wells**
- Appendix E Time-Series Graphs and Data for In-River Wells**
- Appendix F R.I. Analytical Letter**

WELL LOCATION MAP

CIBA SPECIALTY CHEMICALS CORPORATION (FORMERLY CIBA-GEIGY CORPORATION) CRANSTON, RI FACILITY FORMER PRODUCTION AREA

Chemical Well Monitoring Network



1.0 SUMMARY

On June 16, 1989, Ciba-Geigy Corporation (now Ciba Specialty Chemicals Corporation (Ciba)) entered into an Administrative Order on Consent (AOC) with the USEPA. The AOC required Ciba to conduct a Corrective Measures Study (CMS) and propose Media Protection Standards (MPSs) for the former manufacturing facility at Cranston, RI (the Facility). MPSs for five chemicals of concern (COC) were developed (see Table 1) and are monitored at 12 wells two times a year.

The second semiannual monitoring episode was performed on September 21-22, 2000, at which time 12 monitoring wells and 3 production wells were sampled and analyzed by Rhode Island Analytical for a suite of chemicals including the COC. Semiannual water level readings were recorded on October 3, 2000.

A third Production Well, PW-130, began operating on December 20, 1999, and is presently pumping at the nominal capacity of 23 GPM. The new well complements the two existing capture wells to achieve hydraulic capture of the plume along the bulkhead in the former Production Area. The potentiometric surface map (Figure 2, Appendix A) for October 2000, demonstrates capture along the entire bulkhead.

The results of the September 2000, sampling show 1,2-dichlorobenzene and chlorobenzene exceeding the MPSs in 5 wells, 3 along the bulkhead and 2 opposite the bulkhead on the river side. The highest value for 1,2-dichlorobenzene was 9100 ppb (MPS = 94 ppb) and for chlorobenzene 9400 ppb (MPS = 1700 ppb).

The laboratory performing the analyses generated a number of non-detection results with high Method Detection Limits (MDLs). These high MDLs are in some cases higher than the MPSs for the particular analyte and make a determination of achieving the groundwater standard impossible to conclude. Ciba is in discussion with the laboratory to correct this problem. A letter by the laboratory referencing the problem is included in Appendix F.

Since the previous monitoring episode performed in April 2000, MPS exceedances have increased from 5 to 7 and encompass 5 wells of the 12 wells being monitored.

The next monitoring episode will be in April 2001.

2.0 OBJECTIVE

The objective of the monitoring program is to evaluate the GETS on controlling releases to the Pawtuxet River while long-term corrective measures to areas of concern are being evaluated, specifically SWMU-11.

3.0 INTRODUCTION

In August 1996, Ciba submitted to the USEPA a Pawtuxet River Corrective Measures Study (PRCMS) Report. In the PRCMS report (Section 3.5.1, page 3-12) Ciba proposed to measure groundwater elevations in the former Production Area quarterly during the first two years following startup of the groundwater capture system and then semiannually until the groundwater capture and pretreatment system were shutdown.

Therefore, groundwater elevation data is collected from 23 wells to show that shallow contaminated groundwater in the former Production Area is hydraulically controlled from discharging into the Pawtuxet River.

Inclusive of the PRCMS Ciba also proposed to monitor groundwater quality at the Facility. Groundwater is sampled semiannually from 12 selected overburden-monitoring wells to evaluate changes in groundwater quality, specifically in COC.

4.0 MEDIA PROTECTION STANDARDS

During the RCRA Facility investigation an MPS¹ was developed for each of five chemical contaminants detected in the Production Area groundwater. These contaminants and their respective MPSs are summarized in Table 1 and discussed in detail in the PRCMS Report, Section 2.4.1.

¹ From the Public Health and Environmental Risk Evaluation (PHERE) that concluded the sole receptor impacted by contaminated groundwater were benthic invertebrates in the shallow sediments of the Pawtuxet River.

Table 1
Media Protection Standards
CIBA-GEIGY, Cranston R.I. Facility
Former Production Area

| Compound | MPS Concentration (ppb) |
|---------------------|-------------------------|
| 1,2-dichlorobenzene | 94 |
| chlorobenzene | 1700 |
| ortho-chlorotoluene | 1500 |
| toluene | 1700* |
| xylenes | 76 |

* Rhode Island Groundwater Objective GB - Groundwater classified as GB has been designated by the Rhode Island Department of Environmental Management (RIDEM) as not suitable for public or private drinking water use.

5.0 SEMIANNUAL MONITORING RESULTS

This report summarizes the groundwater quality results for the COC sampling that was performed September 21-22, 2000. The COC data are compared to previous sampling rounds dating back to March 1996, when semiannual monitoring activities were initiated. Also in this report are results of the hydraulic monitoring performed on October 3, 2000. The hydraulic results are compared to pre-pumping baseline conditions dated September 30, 1993.

5.1 Hydraulic Monitoring

Piezometric contours for the overburden aquifer were created using data collected on October 3, 2000, from 23 groundwater monitoring wells and 3 capture wells using Golden Software, Inc., SURFER FOR WINDOWS, Version 5.01 software.

The tabulated groundwater elevation data and the associated potentiometric contours, Figures 1 and 2, are included in Appendix A.

The kriging contour algorithm was used as a best fit method of approximating the directional groundwater flow pattern. The baseline results in Figure 1 show groundwater flow from northwest to southeast to the Pawtuxet River. Figure 2 shows the effect of the 3 extraction wells on the groundwater flow. Well PW-110 north of the walk bridge shows groundwater capture at present pumping capacity 42 GPM; the second and third capture wells, PW-120 (3 GPM) and PW-130 (23 GPM), are capturing the plume along the bulkhead south of the walk

bridge. Together the 3 wells are capturing a significant portion of the groundwater passing by the bulkhead to the Pawtuxet River.

The hydraulic capture along the bulkhead is discussed in detail in the report "Capture Zone Analysis, Former Production Area, Cranston, Rhode Island" dated July 7, 2000.

5.2 Chemicals of Concern Monitoring

Twelve wells were sampled as part of the semiannual sampling episode. The wells are divided into three main groups; shown on the Location Map in Section iii of this report. The COC analytical results are tabulated and included in Table 2 at the end of this section.

Discussion of the COC results:

Three wells are designated upgradient to the bulkhead wells and show no exceedances in any MPS.

The results of the 6 Bulkhead wells are similar to the previous sampling event. In this recent sampling 3 wells were found to have exceedances in one or both of the following contaminants: 1,2-dichlorobenzene or chlorobenzene.

Two of the 3 In-River wells showed exceedances in either 1,2-dichlorobenzene or chlorobenzene. The presence of these contaminants is unusual in that since initiating semiannual monitoring in March 1996, the 3 In-River wells have not exceeded any MPS for any of the COC. This recent change in the groundwater matrix may be a result of modified pumping e.g., additional extraction well 130, however, continue monitoring will look for any trends.

Table 2

Monitoring Results for September 21-20, 2000
Chemicals Of Concern
(as ppb)

| Well Location | Well Number | MPS | 94 1,2-Dichloro-Benzene | 1700 Chloro-Benzene | 1500 o-Chloro-Toluene | 1700 Toluene | 76 Xylenes |
|---------------|-------------|------|----------------------------|------------------------|--------------------------|-----------------|---------------|
| Upgradient | MW-004S | | 30 U | 30 U | 30 U | 30 U | 30 U |
| | MW-012S | | 1 U | 1 U | 1 U | 1 U | 1 |
| | MW-021S | | 500 U | 500 U | 500 U | 500 U | 500 U |
| Bulkhead | MW-001S | 450 | | 2500 | 1 U | 1 U | 1 U |
| | MW-002S | 930 | | 9400 | 500 U | 500 U | 500 U |
| | P-035S | 6600 | | 500 U | 500 U | 500 U | 500 U |
| | P-036S | | 30 U | 300 | 30 U | 30 U | 30 U |
| | P-037S | | 30 U | 370 | 30 U | 30 U | 30 U |
| | P-038S | | 1 U | 1 | 1 U | 1 U | 1 U |
| In-River | SW-110 | | 100 U | 2000 | 100 U | 820 | 100 U |
| | SW-120 | | 9100 | 500 U | 500 U | 500 U | 500 U |
| | SW-130 | | 5 U | 5 U | 5 U | 5 U | 5 U |

U = Nondetect with detection limit given

J = Estimated value

MPS Exceedance

6.0 DISCUSSION OF RESULTS

The September 2000, Certificate of Analysis by R.I. Analytical is included in Appendix B. The cumulative results from 1996 to the present for 12 wells and 5 COC are included as Tables 3, 4, and 5 in Appendices C, D, and E respectively. The cumulative results of each COC are plotted as Time-Series graphs for a better perception of trends, if any, over the sampling history since the inception of the groundwater extraction system in September 1995. These plots are also found in the respective Appendices C, D, and E.

A review of upgradient wells shows non-detect for the 5 COC.

Trends in concentration are not apparent at the 6 bulkhead wells (Table 4, Appendix D). The MPSs are being exceeded in wells MW-001S, MW-002S, and P-35S where concentrations of 1,2- dichlorobenzene and chlorobenzene are now elevated for the last two sampling episodes.

The 3 In-River wells (Table 5, Appendix E) are generally low to non-detect for contamination, however, this last sampling event has pronounced concentrations of 1,2-dichlorobenzene and chlorobenzene at 2 of the wells. These concentrations will need confirmation in future analyses.

7.0 CONCLUSION

Groundwater quality as measured by the exceedance in MPSs for groundwater monitoring in the former Production Area has improved over time, but remains under pressure because of 1,2-dichlorobenzene and chlorobenzene presence. Ciba has established hydraulic control by capture of contaminated groundwater passing by the bulkhead to the Pawtuxet River with the presence of 3 capture wells. This capture can be viewed in Figure 2, Appendix A,

The next well sampling is scheduled for April 2001.

APPENDIX A

TABULATED

GROUNDWATER ELEVATION DATA

AND

POTENTIOMETRIC CONTOURS

CIBA SPECIALTY CHEMICALS CORPORATION
(FORMERLY CIBA-GEIGY CORPORATION)
180 MILL STREET
CRANSTON, RI.

GROUNDWATER MONITORING

October 3, 2000 September 30, 1993

| MONITORING WELL | TOC MSL FEET | TOC TO WATER FEET | GW ELEVATION MSL FEET | GW ELEVATION MSL FEET |
|--------------------|--------------------|-------------------------|-----------------------------|-----------------------------|
| PW-110 | 15.72 | 20.30 | -4.58 | NA |
| PW-120 | 14.25 | 17.10 | -2.85 | NA |
| PW-130 | 16.59 | 22.38 | -5.79 | NA |
| MW-001S | 15.04 | 8.40 | 6.64 | 9.39 |
| MW-002S | 14.46 | 8.58 | 5.88 | 9.21 |
| MW-003S | 16.61 | 8.45 | 8.16 | 7.96 |
| MW-004S | 21.29 | 11.50 | 9.79 | 10.72 |
| MW-010S | 22.62 | 12.06 | 10.56 | 11.34 |
| MW-012S | 22.54 | 12.38 | 10.16 | 10.54 |
| MW-013S | 18.44 | 10.39 | 8.05 | 9.83 |
| MW-020S | 21.94 | 11.26 | 10.68 | 11.53 |
| MW-022S | 16.87 | 8.24 | 8.63 | 9.63 |
| MW-023S | 20.71 | 11.52 | 9.19 | 9.41 |
| MW-024S | 21.04 | 9.95 | 11.09 | 10.89 |
| MW-034S | 18.85 | 9.30 | 9.55 | 10.4 |
| P-001S | 16.41 | 10.29 | 6.12 | 9.17 |
| P-002S | 13.85 | 7.72 | 6.13 | 8.38 |
| P-003S | 15.45 | 8.40 | 7.05 | 7.09 |
| P-004S | 19.92 | 9.43 | 10.49 | 11.07 |
| P-005S | 21.18 | 11.75 | 9.43 | 10.68 |
| P-006S | 23.62 | 13.88 | 9.74 | 10.39 |
| P-034S | 17.15 | 8.32 | 8.83 | 10.12 |
| P-035S | 15.32 | 9.64 | 5.68 | 8.51 |
| P-036S | 15.91 | 10.16 | 5.75 | 8.62 |
| P-037S | 15.69 | 10.59 | 5.1 | 8.96 |
| P-038S | 16.19 | 8.44 | 7.75 | 8.74 |

NA - Not Available

Figure 1

**CIBA SPECIALTY CHEMICALS CORPORATION
CRANSTON, RI FACILITY
FORMER PRODUCTION AREA**

**Pre-Pump & Treat Potentiometric Surface Map
September 30, 1993**

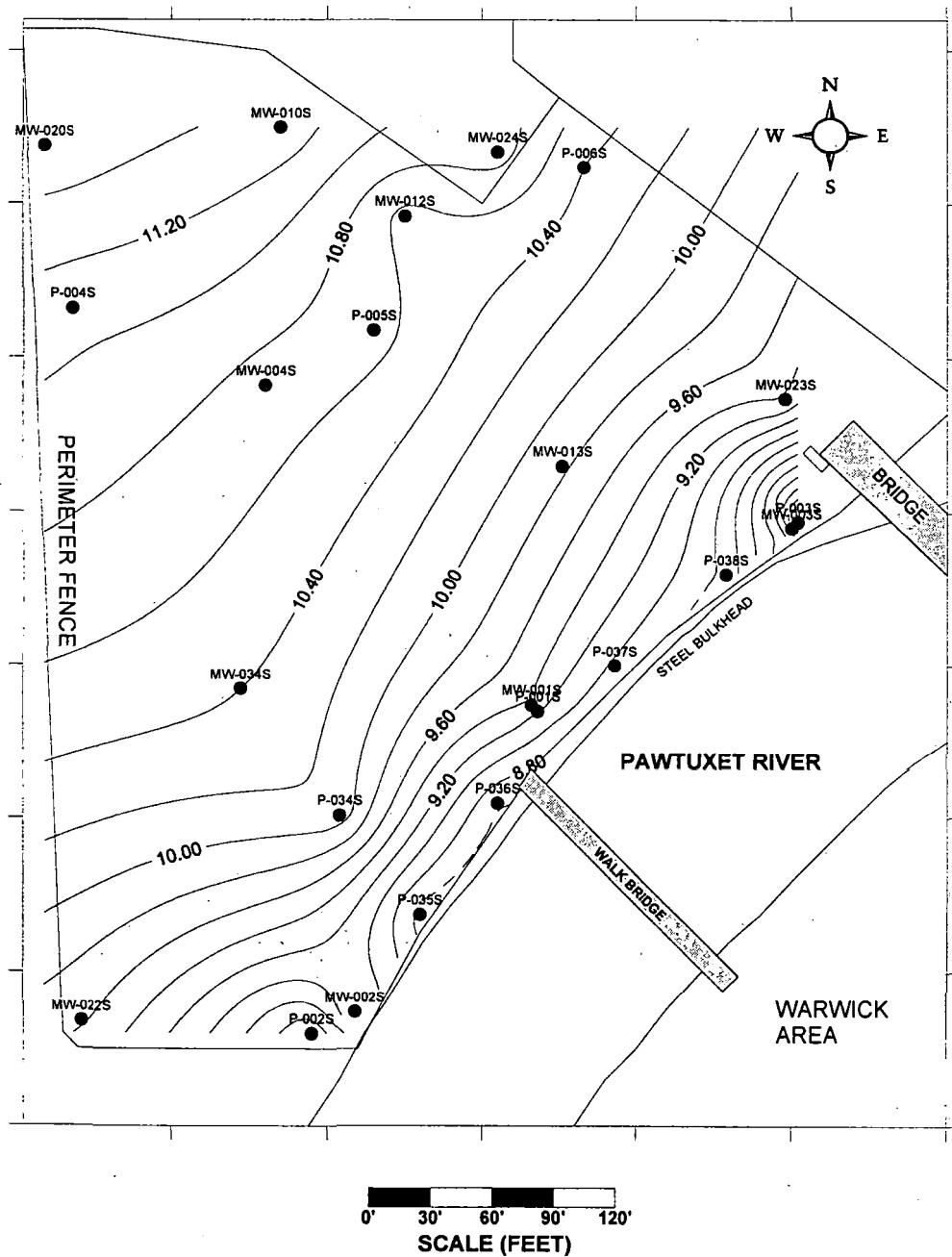
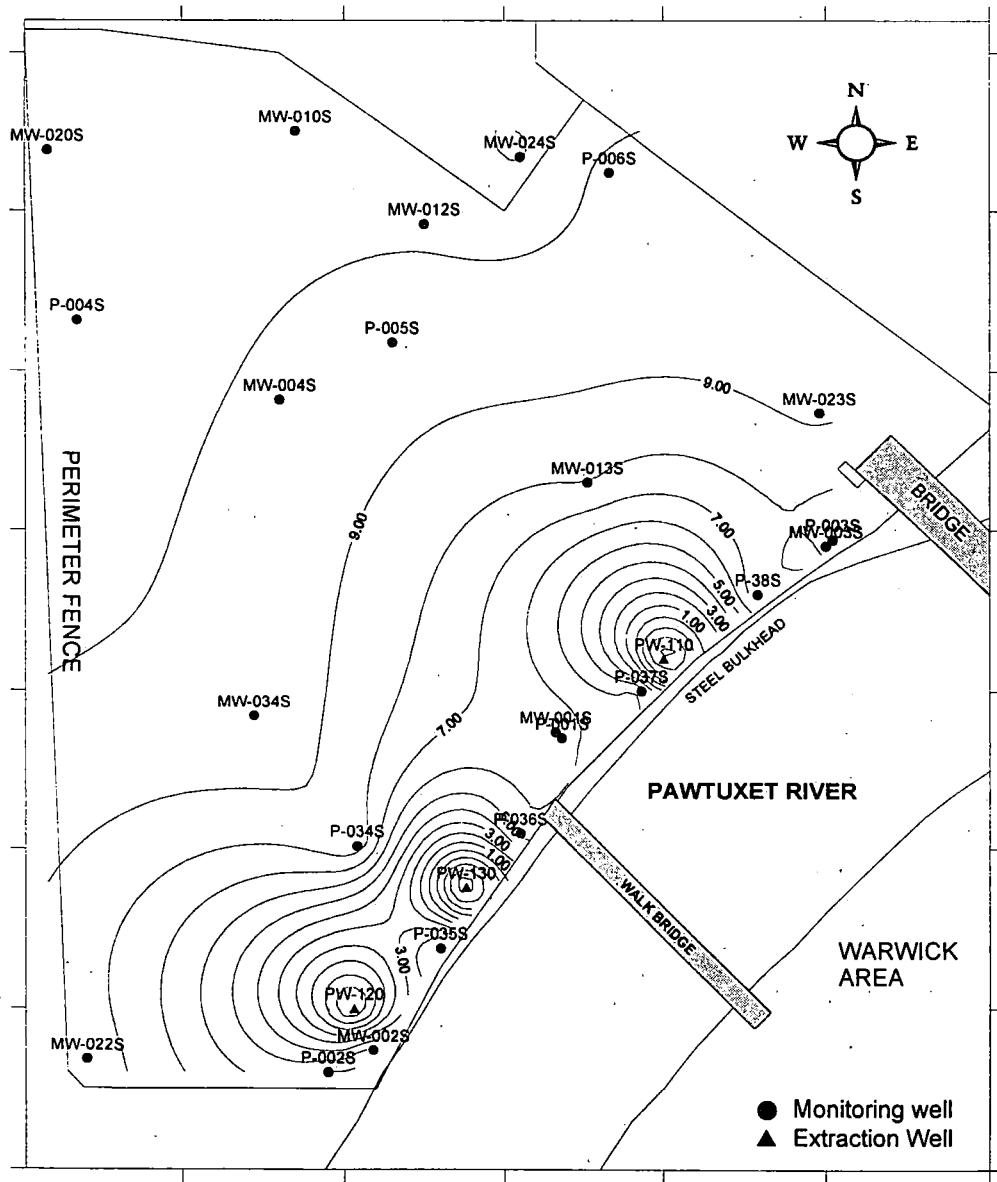


Figure 2

**CIBA SPECIALTY CHEMICALS CORPORATION
CRANSTON, RI FACILITY
FORMER PRODUCTION AREA**

**Potentiometric Surface Map
October 3, 2000**



0' 30' 60' 90' 120'
SCALE (FEET)

APPENDIX B

CERTIFICATE OF ANALYSIS

R. I. ANALYTICAL

R.I. Analytical

Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.
Attn: Mr. Barry Cohen
Environmental Building #743
Route 37 West
Toms River, NJ 08754

Date Received: 9/22/00
Date Reported: 10/11/00
P.O. #: T0091248
Work Order #: 0009-11589

DESCRIPTION: CIBA GEIGY SITE ON MILL ST., CRAN.-MW'S COLLECTED BY RIAL

Subject sample(s) has/have been analyzed by our laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies. The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844, NY-11726

If you have any questions regarding this work, or if we may be of further assistance, please contact us.

Approved by:

James E. Mich
Vice President

enc: Chair of Custody

Paul Perrotti
Data Reporting Manager

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 001

SAMPLE DESCRIPTION: MW-02S GRAB 09/21/00 @0930

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.7 | | SU | EPA 150.1 | 9/21/00 9:30 | PAP |
| TEMPERATURE (field) | 69 | | F | EPA 170.1 | 9/21/00 9:30 | PAP |
| SPECIFIC CONDUCTANCE | 620 | 1 | µMHOS/CM | EPA 120.1 | 9/21/00 9:30 | PAP |
| Dissolved Oxygen | <1.0 | 1.0 | mg/l | EPA 360.1 | 9/21/00 9:30 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <5000 | 5000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| bromomethane | <5000 | 5000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| vinyl chloride | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| dichlorodifluoromethane | <5000 | 5000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| chloroethane | <5000 | 5000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| methylene chloride | <3000 | 3000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| trichlorofluoromethane | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,1-dichloroethylene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,1-dichloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| trans-1,2-dichloroethylene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| chloroform | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,2-dichloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,1,1-Trichloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| carbon tetrachloride | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| bromodichloromethane | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,2-dichloropropane | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| cis-1,3-dichloropropylene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| trichloroethylene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| trans-1,3-dichloropropylene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,1,2-Trichloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| Dibromochloromethane | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| Bromoform | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| Tetrachloroethylene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,1,2,2-Tetrachloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| Chlorobenzene | 9400 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 2-chloroethyl vinyl ether | <1000 | 1000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| benzene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| toluene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| ethylbenzene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| xylenes(Total) | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| acetone | <5000 | 5000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| carbon disulfide | <3000 | 3000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 2-butanone(MEK) | <5000 | 5000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| vinyl acetate | <25000 | 25000 | ug/l | 8240 | 10/04/00 9:22 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 001

MW-02S GRAB 09/21/00 @0930

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <25000 | 25000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 2-hexanone | <25000 | 25000 | ug/l | 8240 | 10/04/00 9:22 | MT |
| Styrene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| o-chlorotoluene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,2-Dichlorobenzene | 930 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,3-Dichlorobenzene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| 1,4-Dichlorobenzene | <500 | 500 | ug/l | 8240 | 10/04/00 9:22 | MT |
| Surrogates | | RANGE | | 8240 | 10/04/00 9:22 | MT |
| Dibromofluoromethane | 89 | | 86-118% | 8240 | 10/04/00 9:22 | MT |
| 4-Bromofluorobenzene | 87 | | 86-115% | 8240 | 10/04/00 9:22 | MT |
| Toluene-D8 | 104 | | 88-110% | 8240 | 10/04/00 9:22 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 002

SAMPLE DESCRIPTION: SW-120 GRAB 09/21/00 @1105

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 7.0 | | SU | EPA 150.1 | 9/21/00 11:05 | PAP |
| TEMPERATURE (field) | 66.5 | | F | EPA 170.1 | 9/21/00 11:05 | PAP |
| SPECIFIC CONDUCTANCE | 230 | 1 | uMHOS/CM | EPA 120.1 | 9/21/00 11:05 | PAP |
| Dissolved Oxygen | <1.0 | 1.0 | mg/l | EPA 360.1 | 9/21/00 11:05 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <5000 | 5000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| bromomethane | <5000 | 5000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| vinyl chloride | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| dichlorodifluoromethane | <5000 | 5000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| chloroethane | <5000 | 5000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| methylene chloride | <3000 | 3000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| trichlorofluoromethane | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,1-dichloroethylene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,1-dichloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| trans-1,2-dichloroethylene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| chloroform | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,2-dichloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,1,1-Trichloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| carbon tetrachloride | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| bromodichloromethane | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,2-dichloropropane | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| cis-1,3-dichloropropylene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| trichloroethylene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| trans-1,3-dichloropropylene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,1,2-Trichloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| Dibromochloromethane | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| Bromoform | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| Tetrachloroethylene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,1,2,2-Tetrachloroethane | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| Chlorobenzene | 1800 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 2-chloroethyl vinyl ether | <1000 | 1000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| benzene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| toluene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| ethylbenzene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| xylenes(Total) | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| cetone | <5000 | 5000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| carbon disulfide | <3000 | 3000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 2-butanone(MEK) | <5000 | 5000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| vinyl acetate | <25000 | 25000 | ug/l | 8240 | 10/04/00 10:01 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 002

SW-120 GRAB 09/21/00 @1105

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <25000 | 25000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 2-hexanone | <25000 | 25000 | ug/l | 8240 | 10/04/00 10:01 | MT |
| Styrene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| o-chlorotoluene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,2-Dichlorobenzene | 9100 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,3-Dichlorobenzene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| 1,4-Dichlorobenzene | <500 | 500 | ug/l | 8240 | 10/04/00 10:01 | MT |
| Surrogates | | RANGE | | 8240 | 10/04/00 10:01 | MT |
| Dibromofluoromethane | 90 | | 86-118% | 8240 | 10/04/00 10:01 | MT |
| 4-Bromofluorobenzene | 95 | | 86-115% | 8240 | 10/04/00 10:01 | MT |
| Toluene-D8 | 108 | | 88-110% | 8240 | 10/04/00 10:01 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 003

SAMPLE DESCRIPTION: P-35S GRAB 09/21/00 @1035

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.9 | | SU | EPA 150.1 | 9/21/00 10:35 | PAP |
| TEMPERATURE (field) | 67.9 | | F | EPA 170.1 | 9/21/00 10:35 | PAP |
| SPECIFIC CONDUCTANCE | 501 | 1 | µMHOS/CM | EPA 120.1 | 9/21/00 10:35 | PAP |
| Dissolved Oxygen | < 1.0 | 1.0 | mg/l | EPA 360.1 | 9/21/00 10:35 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | < 5000 | 5000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| bromomethane | < 5000 | 5000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| vinyl chloride | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| dichlorodifluoromethane | < 5000 | 5000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| chloroethane | < 5000 | 5000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| methylene chloride | < 3000 | 3000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| trichlorofluoromethane | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,1-dichloroethylene | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,1-dichloroethane | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| trans-1,2-dichloroethylene | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| chloroform | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,2-dichloroethane | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,1,1-Trichloroethane | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| carbon tetrachloride | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| bromodichloromethane | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,2-dichloropropane | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| cis-1,3-dichloropropylene | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| trichloroethylene | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| trans-1,3-dichloropropylene | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,1,2-Trichloroethane | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| Dibromochloromethane | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| Bromoform | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| Tetrachloroethylene | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,1,2,2-Tetrachloroethane | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| Chlorobenzene | 11000 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 2-chloroethyl vinyl ether | < 1000 | 1000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| benzene | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| toluene | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| ethylbenzene | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| oluenes(Total) | < 500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| acetone | < 5000 | 5000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| carbon disulfide | < 3000 | 3000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 2-butanone(MEK) | < 5000 | 5000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| vinyl acetate | < 25000 | 25000 | ug/l | 8240 | 10/04/00 10:41 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp..

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 003

P-35S GRAB 09/21/00 @1035

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <25000 | 25000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 2-hexanone | <25000 | 25000 | ug/l | 8240 | 10/04/00 10:41 | MT |
| Styrene | <500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| o-chlorotoluene | <500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,2-Dichlorobenzene | 6600 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,3-Dichlorobenzene | <500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| 1,4-Dichlorobenzene | <500 | 500 | ug/l | 8240 | 10/04/00 10:41 | MT |
| Surrogates | | RANGE | | 8240 | 10/04/00 10:41 | MT |
| Dibromofluoromethane | 110 | | 86-118% | 8240 | 10/04/00 10:41 | MT |
| 4-Bromofluorobenzene | 106 | | 86-115% | 8240 | 10/04/00 10:41 | MT |
| Toluene-D8 | 102 | | 88-110% | 8240 | 10/04/00 10:41 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 004

SAMPLE DESCRIPTION: P-36S GRAB 09/21/00 @1210

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 7.3 | | SU | EPA 150.1 | 9/21/00 12:10 | PAP |
| TEMPERATURE (field) | 68.2 | | F | EPA 170.1 | 9/21/00 12:10 | PAP |
| SPECIFIC CONDUCTANCE | 615 | 1 | µMHOS/CM | EPA 120.1 | 9/21/00 12:10 | PAP |
| Dissolved Oxygen | <1.0 | 1.0 | mg/l | EPA 360.1 | 9/21/00 12:10 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <250 | 250 | ug/l | 8240 | 10/03/00 17:05 | MT |
| bromomethane | <250 | 250 | ug/l | 8240 | 10/03/00 17:05 | MT |
| vinyl chloride | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| dichlorodifluoromethane | <250 | 250 | ug/l | 8240 | 10/03/00 17:05 | MT |
| chloroethane | <250 | 250 | ug/l | 8240 | 10/03/00 17:05 | MT |
| methylene chloride | <100 | 100 | ug/l | 8240 | 10/03/00 17:05 | MT |
| trichlorofluoromethane | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,1-dichloroethylene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,1-dichloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| trans-1,2-dichloroethylene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| chloroform | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,2-dichloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,1,1-Trichloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| carbon tetrachloride | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| bromodichloromethane | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,2-dichloropropane | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| cis-1,3-dichloropropylene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| trichloroethylene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| trans-1,3-dichloropropylene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,1,2-Trichloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| Dibromochloromethane | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| Bromoform | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| Tetrachloroethylene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,1,2,2-Tetrachloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| Chlorobenzene | 300 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 2-chloroethyl vinyl ether | <50 | 50 | ug/l | 8240 | 10/03/00 17:05 | MT |
| benzene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| toluene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| ethylbenzene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| styrenes(Total) | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| acetone | <250 | 250 | ug/l | 8240 | 10/03/00 17:05 | MT |
| carbon disulfide | <100 | 100 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 2-butanone(MEK) | <250 | 250 | ug/l | 8240 | 10/03/00 17:05 | MT |
| vinyl acetate | <1300 | 1300 | ug/l | 8240 | 10/03/00 17:05 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.
 Date Received: 9/22/00
 Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 004

P-36S GRAB 09/21/00 @1210

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <1300 | 1300 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 2-hexanone | <1300 | 1300 | ug/l | 8240 | 10/03/00 17:05 | MT |
| Styrene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| o-chlorotoluene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,2-Dichlorobenzene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,3-Dichlorobenzene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| 1,4-Dichlorobenzene | <30 | 30 | ug/l | 8240 | 10/03/00 17:05 | MT |
| Surrogates | | RANGE | | 8240 | 10/03/00 17:05 | MT |
| Dibromofluoromethane | 101 | | 86-118% | 8240 | 10/03/00 17:05 | MT |
| 4-Bromofluorobenzene | 88 | | 86-115% | 8240 | 10/03/00 17:05 | MT |
| Butene-D8 | 107 | | 88-110% | 8240 | 10/03/00 17:05 | MT |

Volatile organic analyses performed under the operating guidelines
 method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 005

SAMPLE DESCRIPTION: MW-01S GRAB 09/21/00 @1305

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.5 | | SU | EPA 150.1 | 9/21/00 13:05 | PAP |
| TEMPERATURE (field) | 65.3 | | F | EPA 170.1 | 9/21/00 13:05 | PAP |
| SPECIFIC CONDUCTANCE | 425 | 1 | µMHOS/CM | EPA 120.1 | 9/21/00 13:05 | PAP |
| Dissolved Oxygen | <1.0 | 1.0 | mg/l | EPA 360.1 | 9/21/00 13:05 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <10 | 10 | ug/l | 8240 | 10/04/00 11:19 | MT |
| bromomethane | <10 | 10 | ug/l | 8240 | 10/04/00 11:19 | MT |
| vinyl chloride | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| dichlorodifluoromethane | <10 | 10 | ug/l | 8240 | 10/04/00 11:19 | MT |
| chloroethane | <10 | 10 | ug/l | 8240 | 10/04/00 11:19 | MT |
| methylene chloride | <5 | 5 | ug/l | 8240 | 10/04/00 11:19 | MT |
| trichlorofluoromethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,1-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,1-dichloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| trans-1,2-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| chloroform | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,2-dichloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,1,1-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| carbon tetrachloride | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| bromodichloromethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,2-dichloropropane | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| cis-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| trichloroethylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| trans-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,1,2-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| Dibromochloromethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| Bromoform | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| Tetrachloroethylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,1,2,2-Tetrachloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| Chlorobenzene | 2500 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 2-chloroethyl vinyl ether | <2 | 2 | ug/l | 8240 | 10/04/00 11:19 | MT |
| benzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| toluene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| ethylbenzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| styrenes(Total) | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| acetone | <10 | 10 | ug/l | 8240 | 10/04/00 11:19 | MT |
| carbon disulfide | <5 | 5 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 2-butanone(MEK) | <10 | 10 | ug/l | 8240 | 10/04/00 11:19 | MT |
| vinyl acetate | <50 | 50 | ug/l | 8240 | 10/04/00 11:19 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.
 Date Received: 9/22/00
 Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 005

MW-01S GRAB 09/21/00 @1305

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <50 | 50 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 2-hexanone | <50 | 50 | ug/l | 8240 | 10/04/00 11:19 | MT |
| Styrene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| o-chlorotoluene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,2-Dichlorobenzene | 450 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,3-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| 1,4-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:19 | MT |
| Surrogates | | | RANGE | 8240 | 10/04/00 11:19 | MT |
| Dibromofluoromethane | 96 | | 86-118% | 8240 | 10/04/00 11:19 | MT |
| 4-Bromofluorobenzene | 93 | | 86-115% | 8240 | 10/04/00 11:19 | MT |
| Toluene-D8 | 107 | | 88-110% | 8240 | 10/04/00 11:19 | MT |

Volatile organic analyses performed under the operating guidelines
 method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 006

SAMPLE DESCRIPTION: SW-130 GRAB 09/21/00 @1140

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 7.0 | | SU | EPA 150.1 | 9/21/00 11:40 | PAP |
| TEMPERATURE (field) | 65.9 | | F | EPA 170.1 | 9/21/00 11:40 | PAP |
| SPECIFIC CONDUCTANCE | 227 | 1 | uMHOS/CM | EPA 120.1 | 9/21/00 11:40 | PAP |
| Dissolved Oxygen | 2.1 | 1.0 | mg/l | EPA 360.1 | 9/21/00 11:40 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <50 | 50 | ug/l | 8240 | 10/03/00 17:46 | MT |
| bromomethane | <50 | 50 | ug/l | 8240 | 10/03/00 17:46 | MT |
| vinyl chloride | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| dichlorodifluoromethane | <50 | 50 | ug/l | 8240 | 10/03/00 17:46 | MT |
| chloroethane | <50 | 50 | ug/l | 8240 | 10/03/00 17:46 | MT |
| methylene chloride | <30 | 30 | ug/l | 8240 | 10/03/00 17:46 | MT |
| trichlorofluoromethane | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,1-dichloroethylene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,1-dichloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| trans-1,2-dichloroethylene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| chloroform | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,2-dichloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,1,1-Trichloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| carbon tetrachloride | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| bromodichloromethane | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,2-dichloropropane | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| cis-1,3-dichloropropylene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| trichloroethylene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| trans-1,3-dichloropropylene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,1,2-Trichloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| Dibromochemicalmethane | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| Bromoform | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| Tetrachloroethylene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,1,2,2-Tetrachloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| Chlorobenzene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 2-chloroethyl vinyl ether | <10 | 10 | ug/l | 8240 | 10/03/00 17:46 | MT |
| benzene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| toluene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| ethylbenzene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| xylenes(Total) | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| acetone | <50 | 50 | ug/l | 8240 | 10/03/00 17:46 | MT |
| carbon disulfide | <30 | 30 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 2-butanone(MEK) | <50 | 50 | ug/l | 8240 | 10/03/00 17:46 | MT |
| vinyl acetate | <300 | 300 | ug/l | 8240 | 10/03/00 17:46 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 006

SW-130 GRAB 09/21/00 @1140

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <300 | 300 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 2-hexanone | <300 | 300 | ug/l | 8240 | 10/03/00 17:46 | MT |
| Styrene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| o-chlorotoluene | 11 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,2-Dichlorobenzene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,3-Dichlorobenzene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| 1,4-Dichlorobenzene | <5 | 5 | ug/l | 8240 | 10/03/00 17:46 | MT |
| Surrogates | | RANGE | | 8240 | 10/03/00 17:46 | MT |
| Dibromofluoromethane | 98 | | 86-118% | 8240 | 10/03/00 17:46 | MT |
| 4-Bromofluorobenzene | 92 | | 86-115% | 8240 | 10/03/00 17:46 | MT |
| Toluene-D8 | 93 | | 88-110% | 8240 | 10/03/00 17:46 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 007

SAMPLE DESCRIPTION: P-37S GRAB 09/21/00 @1425

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 7.0 | | SU | EPA 150.1 | 9/21/00 14:25 | PAP |
| TEMPERATURE (field) | 70.3 | | F | EPA 170.1 | 9/21/00 14:25 | PAP |
| SPECIFIC CONDUCTANCE | 492 | 1 | uMHOS/CM | EPA 120.1 | 9/21/00 14:25 | PAP |
| Dissolved Oxygen | 1.0 | 1.0 | mg/l | EPA 360.1 | 9/21/00 14:25 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <250 | 250 | ug/l | 8240 | 10/03/00 18:25 | MT |
| bromomethane | <250 | 250 | ug/l | 8240 | 10/03/00 18:25 | MT |
| vinyl chloride | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| dichlorodifluoromethane | <250 | 250 | ug/l | 8240 | 10/03/00 18:25 | MT |
| chloroethane | <250 | 250 | ug/l | 8240 | 10/03/00 18:25 | MT |
| methylene chloride | <100 | 100 | ug/l | 8240 | 10/03/00 18:25 | MT |
| trichlorofluoromethane | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,1-dichloroethylene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,1-dichloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| trans-1,2-dichloroethylene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| chloroform | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,2-dichloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,1,1-Trichloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| carbon tetrachloride | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| bromodichloromethane | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,2-dichloropropane | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| cis-1,3-dichloropropylene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| trichloroethylene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| trans-1,3-dichloropropylene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,1,2-Trichloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| Dibromochloromethane | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| Bromoform | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| Tetrachloroethylene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,1,2,2-Tetrachloroethane | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| Chlorobenzene | 370 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 2-chloroethyl vinyl ether | <50 | 50 | ug/l | 8240 | 10/03/00 18:25 | MT |
| benzene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| toluene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| ethylbenzene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| xylenes(Total) | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| acetone | <250 | 250 | ug/l | 8240 | 10/03/00 18:25 | MT |
| carbon disulfide | <100 | 100 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 2-butanone(MEK) | <250 | 250 | ug/l | 8240 | 10/03/00 18:25 | MT |
| vinyl acetate | <1300 | 1300 | ug/l | 8240 | 10/03/00 18:25 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 007

P-37S GRAB 09/21/00 @1425

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <1300 | 1300 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 2-hexanone | <1300 | 1300 | ug/l | 8240 | 10/03/00 18:25 | MT |
| Styrene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| o-chlorotoluene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,2-Dichlorobenzene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,3-Dichlorobenzene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| 1,4-Dichlorobenzene | <30 | 30 | ug/l | 8240 | 10/03/00 18:25 | MT |
| Surrogates | | RANGE | | 8240 | 10/03/00 18:25 | MT |
| Dibromofluoromethane | 110 | | 86-118% | 8240 | 10/03/00 18:25 | MT |
| 4-Bromofluorobenzene | 88 | | 86-115% | 8240 | 10/03/00 18:25 | MT |
| Toluene-D8 | 108 | | 88-110% | 8240 | 10/03/00 18:25 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 008

SAMPLE DESCRIPTION: SW-110 GRAB 09/21/00 @1505

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 7.1 | | SU | EPA 150.1 | 9/21/00 15:05 | PAP |
| TEMPERATURE (field) | 65.7 | | F | EPA 170.1 | 9/21/00 15:05 | PAP |
| SPECIFIC CONDUCTANCE | 324 | 1 | µMHOS/CM | EPA 120.1 | 9/21/00 15:05 | PAP |
| Dissolved Oxygen | 1.7 | 1.0 | mg/l | EPA 360.1 | 9/21/00 15:05 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | < 1000 | 1000 | ug/l | 8240 | 10/03/00 19:05 | MT |
| bromomethane | < 1000 | 1000 | ug/l | 8240 | 10/03/00 19:05 | MT |
| vinyl chloride | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| dichlorodifluoromethane | < 1000 | 1000 | ug/l | 8240 | 10/03/00 19:05 | MT |
| chloroethane | < 1000 | 1000 | ug/l | 8240 | 10/03/00 19:05 | MT |
| methylene chloride | < 500 | 500 | ug/l | 8240 | 10/03/00 19:05 | MT |
| trichlorofluoromethane | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,1-dichloroethylene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,1-dichloroethane | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| trans-1,2-dichloroethylene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| chloroform | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,2-dichloroethane | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,1,1-Trichloroethane | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| carbon tetrachloride | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| bromodichloromethane | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,2-dichloropropane | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| cis-1,3-dichloropropylene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| trichloroethylene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| trans-1,3-dichloropropylene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,1,2-Trichloroethane | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| Dibromochloromethane | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| Bromoform | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| Tetrachloroethylene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,1,2,2-Tetrachloroethane | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| Chlorobenzene | 2000 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 2-chloroethyl vinyl ether | < 200 | 200 | ug/l | 8240 | 10/03/00 19:05 | MT |
| benzene | 370 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| toluene | 820 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| ethylbenzene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| xylenes(Total) | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| acetone | < 1000 | 1000 | ug/l | 8240 | 10/03/00 19:05 | MT |
| carbon disulfide | < 500 | 500 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 2-butanone(MEK) | < 1000 | 1000 | ug/l | 8240 | 10/03/00 19:05 | MT |
| vinyl acetate | < 5000 | 5000 | ug/l | 8240 | 10/03/00 19:05 | MT |

R.I. Analytical Laboratories, Inc.**CERTIFICATE OF ANALYSIS**

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 008

SW-110 GRAB 09/21/00 @1505

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | < 5000 | 5000 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 2-hexanone | < 5000 | 5000 | ug/l | 8240 | 10/03/00 19:05 | MT |
| Styrene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| o-chlorotoluene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,2-Dichlorobenzene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,3-Dichlorobenzene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| 1,4-Dichlorobenzene | < 100 | 100 | ug/l | 8240 | 10/03/00 19:05 | MT |
| Surrogates | | RANGE | | 8240 | 10/03/00 19:05 | MT |
| Dibromofluoromethane | 97 | | 86-118% | 8240 | 10/03/00 19:05 | MT |
| 4-Bromofluorobenzene | 88 | | 86-115% | 8240 | 10/03/00 19:05 | MT |
| Toluene-D8 | 99 | | 88-110% | 8240 | 10/03/00 19:05 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 009

SAMPLE DESCRIPTION: P-38S GRAB 09/21/00 @1535

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.5 | | SU | EPA 150.1 | 9/21/00 15:35 | PAP |
| TEMPERATURE (field) | 68.2 | | F | EPA 170.1 | 9/21/00 15:35 | PAP |
| SPECIFIC CONDUCTANCE | 275 | 1 | µMHOS/CM | EPA 120.1 | 9/21/00 15:35 | PAP |
| Dissolved Oxygen | 2.6 | 1.0 | mg/l | EPA 360.1 | 9/21/00 15:35 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <10 | 10 | ug/l | 8240 | 10/03/00 20:25 | MT |
| bromomethane | <10 | 10 | ug/l | 8240 | 10/03/00 20:25 | MT |
| vinyl chloride | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| chlorodifluoromethane | <10 | 10 | ug/l | 8240 | 10/03/00 20:25 | MT |
| chloroethane | <10 | 10 | ug/l | 8240 | 10/03/00 20:25 | MT |
| methylene chloride | <5 | 5 | ug/l | 8240 | 10/03/00 20:25 | MT |
| trichlorofluoromethane | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,1-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,1-dichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| trans-1,2-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| chloroform | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,2-dichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,1,1-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| carbon tetrachloride | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| bromodichloromethane | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,2-dichloropropane | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| cis-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| trichloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| trans-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,1,2-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| Dibromochloromethane | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| Bromoform | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| Tetrachloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,1,2,2-Tetrachloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| Chlorobenzene | 1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 2-chloroethyl vinyl ether | <2 | 2 | ug/l | 8240 | 10/03/00 20:25 | MT |
| benzene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| toluene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| ethylbenzene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| styrenes(Total) | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| acetone | <10 | 10 | ug/l | 8240 | 10/03/00 20:25 | MT |
| carbon disulfide | <5 | 5 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 2-butanone(MEK) | <10 | 10 | ug/l | 8240 | 10/03/00 20:25 | MT |
| vinyl acetate | <50 | 50 | ug/l | 8240 | 10/03/00 20:25 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 009

P-38S GRAB 09/21/00 @1535

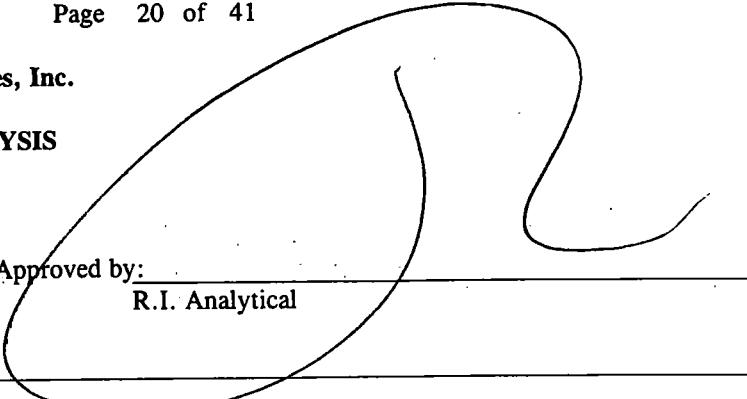
| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <50 | 50 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 2-hexanone | <50 | 50 | ug/l | 8240 | 10/03/00 20:25 | MT |
| Styrene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| o-chlorotoluene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,2-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,3-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| 1,4-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/03/00 20:25 | MT |
| Surrogates | | | RANGE | 8240 | 10/03/00 20:25 | MT |
| Dibromofluoromethane | 106 | | 86-118% | 8240 | 10/03/00 20:25 | MT |
| 4-Bromofluorobenzene | 88 | | 86-115% | 8240 | 10/03/00 20:25 | MT |
| Toluene-D8 | 108 | | 88-110% | 8240 | 10/03/00 20:25 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.
 Date Received: 9/22/00
 Work Order # 0009-11589

Approved by:

 R.I. Analytical

Sample #: 010

SAMPLE DESCRIPTION: MW-12S GRAB 09/22/00 @0900

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.8 | | SU | EPA 150.1 | 9/22/00 9:00 | PAP |
| TEMPERATURE (field) | 63.9 | | F | EPA 170.1 | 9/22/00 9:00 | PAP |
| SPECIFIC CONDUCTANCE | 285 | 1 | µMHOS/CM | EPA 120.1 | 9/22/00 9:00 | PAP |
| Dissolved Oxygen | 1.1 | 1.0 | mg/l | EPA 360.1 | 9/22/00 9:00 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | < 10 | 10 | ug/l | 8240 | 10/05/00 14:50 | MT |
| bromomethane | < 10 | 10 | ug/l | 8240 | 10/05/00 14:50 | MT |
| vinyl chloride | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| dichlorodifluoromethane | < 10 | 10 | ug/l | 8240 | 10/05/00 14:50 | MT |
| chloroethane | < 10 | 10 | ug/l | 8240 | 10/05/00 14:50 | MT |
| methylene chloride | < 5 | 5 | ug/l | 8240 | 10/05/00 14:50 | MT |
| trichlorofluoromethane | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,1-dichloroethylene | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,1-dichloroethane | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| trans-1,2-dichloroethylene | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| chloroform | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,2-dichloroethane | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,1,1-Trichloroethane | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| carbon tetrachloride | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| bromodichloromethane | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,2-dichloropropane | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| cis-1,3-dichloropropylene | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| trichloroethylene | 14 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| trans-1,3-dichloropropylene | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,1,2-Trichloroethane | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| Dibromochloromethane | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| Bromoform | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| Tetrachloroethylene | 3 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,1,2,2-Tetrachloroethane | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| Chlorobenzene | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 2-chloroethyl vinyl ether | < 2 | 2 | ug/l | 8240 | 10/05/00 14:50 | MT |
| benzene | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| toluene | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| ethylbenzene | < 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| xylenes(Total) | 1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| acetone | < 10 | 10 | ug/l | 8240 | 10/05/00 14:50 | MT |
| carbon disulfide | < 5 | 5 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 2-butanone(MEK) | < 10 | 10 | ug/l | 8240 | 10/05/00 14:50 | MT |
| vinyl acetate | < 50 | 50 | ug/l | 8240 | 10/05/00 14:50 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 010

MW-12S GRAB 09/22/00 @0900

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <50 | 50 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 2-hexanone | <50 | 50 | ug/l | 8240 | 10/05/00 14:50 | MT |
| Styrene | <1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| o-chlorotoluene | <1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,2-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,3-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| 1,4-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 14:50 | MT |
| Surrogates | | | RANGE | 8240 | 10/05/00 14:50 | MT |
| Dibromofluoromethane | 94 | | 86-118% | 8240 | 10/05/00 14:50 | MT |
| 4-Bromofluorobenzene | 99 | | 86-115% | 8240 | 10/05/00 14:50 | MT |
| Toluene-D8 | 95 | | 88-110% | 8240 | 10/05/00 14:50 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 011

SAMPLE DESCRIPTION: MW-21S GRAB 09/22/00 @1000

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.5 | | SU | EPA 150.1 | 9/22/00 10:00 | PAP |
| TEMPERATURE (field) | 66.2 | | F | EPA 170.1 | 9/22/00 10:00 | PAP |
| SPECIFIC CONDUCTANCE | 298 | 1 | µMHOS/CM | EPA 120.1 | 9/22/00 10:00 | PAP |
| Dissolved Oxygen | 1.9 | 1.0 | mg/l | EPA 360.1 | 9/22/00 10:00 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | < 5000 | 5000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| bromomethane | < 5000 | 5000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| vinyl chloride | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| dichlorodifluoromethane | < 5000 | 5000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| propane | < 5000 | 5000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| methylene chloride | < 3000 | 3000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| trichlorofluoromethane | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,1-dichloroethylene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,1-dichloroethane | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| trans-1,2-dichloroethylene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| chloroform | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,2-dichloroethane | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,1,1-Trichloroethane | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| carbon tetrachloride | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| bromodichloromethane | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,2-dichloropropane | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| cis-1,3-dichloropropylene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| trichloroethylene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| trans-1,3-dichloropropylene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,1,2-Trichloroethane | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| Dibromochloromethane | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| Bromoform | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| Tetrachloroethylene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,1,2,2-Tetrachloroethane | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| Chlorobenzene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 2-chloroethyl vinyl ether | < 1000 | 1000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| benzene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| toluene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| ethylbenzene | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| arlenes(Total) | < 500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| acetone | < 5000 | 5000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| carbon disulfide | < 3000 | 3000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 2-butanone(MEK) | < 5000 | 5000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| vinyl acetate | < 25000 | 25000 | ug/l | 8240 | 10/05/00 15:28 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.
 Date Received: 9/22/00
 Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 011

MW-21S GRAB 09/22/00 @1000

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <25000 | 25000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 2-hexanone | <25000 | 25000 | ug/l | 8240 | 10/05/00 15:28 | MT |
| Styrene | <500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| o-chlorotoluene | 16000 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,2-Dichlorobenzene | <500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,3-Dichlorobenzene | <500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| 1,4-Dichlorobenzene | <500 | 500 | ug/l | 8240 | 10/05/00 15:28 | MT |
| Surrogates | | RANGE | | 8240 | 10/05/00 15:28 | MT |
| Dibromofluoromethane | 95 | | 86-118% | 8240 | 10/05/00 15:28 | MT |
| 4-Bromofluorobenzene | 91 | | 86-115% | 8240 | 10/05/00 15:28 | MT |
| luene-D8 | 101 | | 88-110% | 8240 | 10/05/00 15:28 | MT |

Volatile organic analyses performed under the operating guidelines method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 012

SAMPLE DESCRIPTION: MW-04S GRAB 09/22/00 @0930

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.4 | | SU | EPA 150.1 | 9/22/00 9:30 | PAP |
| TEMPERATURE (field) | 65.2 | | F | EPA 170.1 | 9/22/00 9:30 | PAP |
| SPECIFIC CONDUCTANCE | 426 | 1 | uMHOS/CM | EPA 120.1 | 9/22/00 9:30 | PAP |
| Dissolved Oxygen | 2.0 | 1.0 | mg/l | EPA 360.1 | 9/22/00 9:30 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <250 | 250 | ug/l | 8240 | 10/04/00 12:44 | MT |
| bromomethane | <250 | 250 | ug/l | 8240 | 10/04/00 12:44 | MT |
| vinyl chloride | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| dichlorodifluoromethane | <250 | 250 | ug/l | 8240 | 10/04/00 12:44 | MT |
| chloroethane | <250 | 250 | ug/l | 8240 | 10/04/00 12:44 | MT |
| methylene chloride | <100 | 100 | ug/l | 8240 | 10/04/00 12:44 | MT |
| trichlorofluoromethane | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,1-dichloroethylene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,1-dichloroethane | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| trans-1,2-dichloroethylene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| chloroform | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,2-dichloroethane | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,1,1-Trichloroethane | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| carbon tetrachloride | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| bromodichloromethane | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,2-dichloropropane | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| cis-1,3-dichloropropylene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| trichloroethylene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| trans-1,3-dichloropropylene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,1,2-Trichloroethane | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| Dibromochloromethane | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| Bromoform | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| Tetrachloroethylene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,1,2,2-Tetrachloroethane | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| Chlorobenzene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 2-chloroethyl vinyl ether | <50 | 50 | ug/l | 8240 | 10/04/00 12:44 | MT |
| benzene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| toluene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| ethylbenzene | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| oluenes(Total) | <30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| acetone | <250 | 250 | ug/l | 8240 | 10/04/00 12:44 | MT |
| carbon disulfide | <100 | 100 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 2-butanone(MEK) | <250 | 250 | ug/l | 8240 | 10/04/00 12:44 | MT |
| vinyl acetate | <1300 | 1300 | ug/l | 8240 | 10/04/00 12:44 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 012

MW-04S GRAB 09/22/00 @0930

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|-------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | < 1300 | 1300 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 2-hexanone | < 1300 | 1300 | ug/l | 8240 | 10/04/00 12:44 | MT |
| Styrene | < 30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| o-chlorotoluene | 240 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,2-Dichlorobenzene | < 30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,3-Dichlorobenzene | < 30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| 1,4-Dichlorobenzene | < 30 | 30 | ug/l | 8240 | 10/04/00 12:44 | MT |
| Surrogates | | RANGE | | 8240 | 10/04/00 12:44 | MT |
| Dibromofluoromethane | 103 | 86-118% | | 8240 | 10/04/00 12:44 | MT |
| 4-Bromofluorobenzene | 89 | 86-115% | | 8240 | 10/04/00 12:44 | MT |
| Toluene-D8 | 106 | 88-110% | | 8240 | 10/04/00 12:44 | MT |

Volatile organic analyses performed under the operating guidelines method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 013

SAMPLE DESCRIPTION: TRIP BLANK GRAB 09/21/00 @0800

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|-------|--------|--------------------|---------|
| Volatile Organic Compounds | | | | | | |
| chloromethane | <10 | 10 | ug/l | 8240 | 10/03/00 23:12 | MT |
| bromomethane | <10 | 10 | ug/l | 8240 | 10/03/00 23:12 | MT |
| vinyl chloride | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| dichlorodifluoromethane | <10 | 10 | ug/l | 8240 | 10/03/00 23:12 | MT |
| chloroethane | <10 | 10 | ug/l | 8240 | 10/03/00 23:12 | MT |
| methylene chloride | <5 | 5 | ug/l | 8240 | 10/03/00 23:12 | MT |
| trichlorofluoromethane | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 1,1-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| -dichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| trans-1,2-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| chloroform | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 1,2-dichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 1,1,1-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| carbon tetrachloride | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| bromodichloromethane | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 1,2-dichloropropane | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| cis-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| trichloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| trans-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 1,1,2-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| Dibromochloromethane | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| Bromoform | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| Tetrachloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 1,1,2,2-Tetrachloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| Chlorobenzene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 2-chloroethyl vinyl ether | <2 | 2 | ug/l | 8240 | 10/03/00 23:12 | MT |
| benzene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| toluene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| ethylbenzene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| xylenes(Total) | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| acetone | <10 | 10 | ug/l | 8240 | 10/03/00 23:12 | MT |
| carbon disulfide | <5 | 5 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 2-butanone(MEK) | <10 | 10 | ug/l | 8240 | 10/03/00 23:12 | MT |
| ethyl acetate | <50 | 50 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 2-methyl-2-pentanone(MIBK) | <50 | 50 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 2-hexanone | <50 | 50 | ug/l | 8240 | 10/03/00 23:12 | MT |
| Styrene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| o-chlorotoluene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 013

TRIP BLANK GRAB 09/21/00 @0800

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------|----------------|------------|---------|--------|--------------------|---------|
| 1,2-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 1,3-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| 1,4-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/03/00 23:12 | MT |
| Surrogates | | | RANGE | 8240 | 10/03/00 23:12 | MT |
| Dibromofluoromethane | 94 | | 86-118% | 8240 | 10/03/00 23:12 | MT |
| 4-Bromofluorobenzene | 89 | | 86-115% | 8240 | 10/03/00 23:12 | MT |
| Toluene-D8 | 109 | | 88-110% | 8240 | 10/03/00 23:12 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 014

SAMPLE DESCRIPTION: EQUIPMENT BLANK GRAB 09/21/00 @0900

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|-------|--------|--------------------|---------|
| Volatile Organic Compounds | | | | | | |
| chloromethane | <10 | 10 | ug/l | 8240 | 10/04/00 11:58 | MT |
| bromomethane | <10 | 10 | ug/l | 8240 | 10/04/00 11:58 | MT |
| vinyl chloride | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| dichlorodifluoromethane | <10 | 10 | ug/l | 8240 | 10/04/00 11:58 | MT |
| chloroethane | <10 | 10 | ug/l | 8240 | 10/04/00 11:58 | MT |
| methylene chloride | <5 | 5 | ug/l | 8240 | 10/04/00 11:58 | MT |
| trichlorofluoromethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 1,1-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 1,1-dichloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| trans-1,2-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| chloroform | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 1,2-dichloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 1,1,1-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| carbon tetrachloride | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| bromodichloromethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 1,2-dichloropropane | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| cis-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| trichloroethylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| trans-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 1,1,2-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| Dibromochloromethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| Bromoform | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| Tetrachloroethylene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 1,1,2,2-Tetrachloroethane | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| Chlorobenzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 2-chloroethyl vinyl ether | <2 | 2 | ug/l | 8240 | 10/04/00 11:58 | MT |
| benzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| toluene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| ethylbenzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| xylenes(Total) | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| acetone | <10 | 10 | ug/l | 8240 | 10/04/00 11:58 | MT |
| carbon disulfide | <5 | 5 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 2-butanone(MEK) | <10 | 10 | ug/l | 8240 | 10/04/00 11:58 | MT |
| ethyl acetate | <50 | 50 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 4-methyl-2-pentanone(MIBK) | <50 | 50 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 2-hexanone | <50 | 50 | ug/l | 8240 | 10/04/00 11:58 | MT |
| Styrene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| o-chlorotoluene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 014

EQUIPMENT BLANK GRAB 09/21/00 @0900

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------|----------------|------------|---------|--------|--------------------|---------|
| 1,2-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 1,3-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| 1,4-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/04/00 11:58 | MT |
| Surrogates | | | RANGE | 8240 | 10/04/00 11:58 | MT |
| Dibromofluoromethane | 100 | | 86-118% | 8240 | 10/04/00 11:58 | MT |
| 4-Bromofluorobenzene | 90 | | 86-115% | 8240 | 10/04/00 11:58 | MT |
| Toluene-D8 | 107 | | 88-110% | 8240 | 10/04/00 11:58 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 015

SAMPLE DESCRIPTION: TRIP BLANK GRAB 09/22/00 @0800

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|------------------------------------|----------------|------------|-------|--------|--------------------|---------|
| Volatile Organic Compounds | | | | | | |
| chloromethane | <10 | 10 | ug/l | 8240 | 10/05/00 16:07 | MT |
| bromomethane | <10 | 10 | ug/l | 8240 | 10/05/00 16:07 | MT |
| vinyl chloride | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| dichlorodifluoromethane | <10 | 10 | ug/l | 8240 | 10/05/00 16:07 | MT |
| chloroethane | <10 | 10 | ug/l | 8240 | 10/05/00 16:07 | MT |
| methylene chloride | <5 | 5 | ug/l | 8240 | 10/05/00 16:07 | MT |
| trichlorofluoromethane | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 1,1-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 1,1-dichloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| trans-1,2-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| chloroform | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 1,2-dichloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 1,1,1-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| carbon tetrachloride | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| bromodichloromethane | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 1,2-dichloropropane | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| cis-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| trichloroethylene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| trans-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 1,1,2-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| Dibromochloromethane | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| Bromoform | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| Tetrachloroethylene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 1,1,2,2-Tetrachloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| Chlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 2-chloroethyl vinyl ether | <2 | 2 | ug/l | 8240 | 10/05/00 16:07 | MT |
| benzene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| toluene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| ethylbenzene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| xylenes(Total) | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| acetone | <10 | 10 | ug/l | 8240 | 10/05/00 16:07 | MT |
| carbon disulfide | <5 | 5 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 2-butanone(MEK) | <10 | 10 | ug/l | 8240 | 10/05/00 16:07 | MT |
| ethyl acetate | <50 | 50 | ug/l | 8240 | 10/05/00 16:07 | MT |
| α -methyl-2-pentanone(MIBK) | <50 | 50 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 2-hexanone | <50 | 50 | ug/l | 8240 | 10/05/00 16:07 | MT |
| Styrene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| o-chlorotoluene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 015

TRIP BLANK GRAB 09/22/00 @0800

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------|----------------|------------|---------|--------|--------------------|---------|
| 1,2-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 1,3-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| 1,4-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 16:07 | MT |
| Surrogates | | | RANGE | 8240 | 10/05/00 16:07 | MT |
| Dibromofluoromethane | 104 | | 86-118% | 8240 | 10/05/00 16:07 | MT |
| 4-Bromofluorobenzene | 92 | | 86-115% | 8240 | 10/05/00 16:07 | MT |
| Toluene-D8 | 102 | | 88-110% | 8240 | 10/05/00 16:07 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 016

SAMPLE DESCRIPTION: EQUIPMENT BLANK GRAB 09/22/00 @0900

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|-------|--------|--------------------|---------|
| Volatile Organic Compounds | | | | | | |
| chloromethane | <10 | 10 | ug/l | 8240 | 10/06/00 8:01 | MT |
| bromomethane | <10 | 10 | ug/l | 8240 | 10/06/00 8:01 | MT |
| vinyl chloride | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| dichlorodifluoromethane | <10 | 10 | ug/l | 8240 | 10/06/00 8:01 | MT |
| chloroethane | <10 | 10 | ug/l | 8240 | 10/06/00 8:01 | MT |
| methylene chloride | <5 | 5 | ug/l | 8240 | 10/06/00 8:01 | MT |
| trichlorofluoromethane | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 1,1-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 1,1-dichloroethane | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| trans-1,2-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| chloroform | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 1,2-dichloroethane | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 1,1,1-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| carbon tetrachloride | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| bromodichloromethane | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 1,2-dichloropropane | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| cis-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| trichloroethylene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| trans-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 1,1,2-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| Dibromochloromethane | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| Bromoform | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| Tetrachloroethylene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 1,1,2,2-Tetrachloroethane | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| Chlorobenzene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 2-chloroethyl vinyl ether | <2 | 2 | ug/l | 8240 | 10/06/00 8:01 | MT |
| benzene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| toluene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| ethylbenzene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| xylenes(Total) | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| acetone | <10 | 10 | ug/l | 8240 | 10/06/00 8:01 | MT |
| carbon disulfide | <5 | 5 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 2-butanone(MEK) | <10 | 10 | ug/l | 8240 | 10/06/00 8:01 | MT |
| vinyl acetate | <50 | 50 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 4-methyl-2-pentanone(MIBK) | <50 | 50 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 2-hexanone | <50 | 50 | ug/l | 8240 | 10/06/00 8:01 | MT |
| Styrene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| o-chlorotoluene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 016

EQUIPMENT BLANK GRAB 09/22/00 @0900

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------|----------------|------------|---------|--------|--------------------|---------|
| 1,2-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 1,3-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| 1,4-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/06/00 8:01 | MT |
| Surrogates | | | RANGE | 8240 | 10/06/00 8:01 | MT |
| Dibromofluoromethane | 107 | | 86-118% | 8240 | 10/06/00 8:01 | MT |
| 4-Bromofluorobenzene | 86 | | 86-115% | 8240 | 10/06/00 8:01 | MT |
| Toluene-D8 | 103 | | 88-110% | 8240 | 10/06/00 8:01 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 017

SAMPLE DESCRIPTION: PW-110 GRAB 09/21/00 @1230

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.7 | | SU | EPA 150.1 | 9/21/00 12:30 | PAP |
| TEMPERATURE (field) | 61.7 | | F | EPA 170.1 | 9/21/00 12:30 | PAP |
| SPECIFIC CONDUCTANCE | 257 | 1 | uMHOS/CM | EPA 120.1 | 9/21/00 12:30 | PAP |
| Dissolved Oxygen | 1.1 | 1.0 | mg/l | EPA 360.1 | 9/21/00 12:30 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <100 | 100 | ug/l | 8240 | 10/03/00 21:48 | MT |
| bromomethane | <100 | 100 | ug/l | 8240 | 10/03/00 21:48 | MT |
| vinyl chloride | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| dichlorodifluoromethane | <100 | 100 | ug/l | 8240 | 10/03/00 21:48 | MT |
| propane | <100 | 100 | ug/l | 8240 | 10/03/00 21:48 | MT |
| methylene chloride | <50 | 50 | ug/l | 8240 | 10/03/00 21:48 | MT |
| trichlorofluoromethane | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,1-dichloroethylene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,1-dichloroethane | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| trans-1,2-dichloroethylene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| chloroform | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,2-dichloroethane | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,1,1-Trichloroethane | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| carbon tetrachloride | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| bromodichloromethane | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,2-dichloropropane | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| cis-1,3-dichloropropylene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| trichloroethylene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| trans-1,3-dichloropropylene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,1,2-Trichloroethane | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| Dibromochloromethane | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| Bromoform | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| Tetrachloroethylene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,1,2,2-Tetrachloroethane | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| Chlorobenzene | 96 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 2-chloroethyl vinyl ether | <20 | 20 | ug/l | 8240 | 10/03/00 21:48 | MT |
| benzene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| toluene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| ethylbenzene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| aromatics(Total) | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| acetone | <100 | 100 | ug/l | 8240 | 10/03/00 21:48 | MT |
| carbon disulfide | <50 | 50 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 2-butanone(MEK) | <100 | 100 | ug/l | 8240 | 10/03/00 21:48 | MT |
| vinyl acetate | <500 | 500 | ug/l | 8240 | 10/03/00 21:48 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 017

PW-110 GRAB 09/21/00 @1230

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <500 | 500 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 2-hexanone | <500 | 500 | ug/l | 8240 | 10/03/00 21:48 | MT |
| Styrene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| o-chlorotoluene | 93 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,2-Dichlorobenzene | 100 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,3-Dichlorobenzene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| 1,4-Dichlorobenzene | <10 | 10 | ug/l | 8240 | 10/03/00 21:48 | MT |
| Surrogates | | RANGE | | 8240 | 10/03/00 21:48 | MT |
| Dibromofluoromethane | 102 | | 86-118% | 8240 | 10/03/00 21:48 | MT |
| 4-Bromofluorobenzene | 91 | | 86-115% | 8240 | 10/03/00 21:48 | MT |
| ene-D8 | 97 | | 88-110% | 8240 | 10/03/00 21:48 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 018

SAMPLE DESCRIPTION: PW-120 GRAB 09/21/00 @0955

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.7 | | SU | EPA 150.1 | 9/21/00 9:55 | PAP |
| TEMPERATURE (field) | 62.5 | | F | EPA 170.1 | 9/21/00 9:55 | PAP |
| SPECIFIC CONDUCTANCE | 340 | 1 | µMHOS/CM | EPA 120.1 | 9/21/00 9:55 | PAP |
| Dissolved Oxygen | 1.7 | 1.0 | mg/l | EPA 360.1 | 9/21/00 9:55 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <50 | 50 | ug/l | 8240 | 10/03/00 21:05 | MT |
| bromomethane | <50 | 50 | ug/l | 8240 | 10/03/00 21:05 | MT |
| vinyl chloride | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| dichlorodifluoromethane | <50 | 50 | ug/l | 8240 | 10/03/00 21:05 | MT |
| propane | <50 | 50 | ug/l | 8240 | 10/03/00 21:05 | MT |
| methylene chloride | <30 | 30 | ug/l | 8240 | 10/03/00 21:05 | MT |
| trichlorofluoromethane | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,1-dichloroethylene | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,1-dichloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| trans-1,2-dichloroethylene | 9 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| chloroform | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,2-dichloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,1,1-Trichloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| carbon tetrachloride | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| bromodichloromethane | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,2-dichloropropane | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| cis-1,3-dichloropropylene | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| trichloroethylene | 52 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| trans-1,3-dichloropropylene | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,1,2-Trichloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| Dibromochloromethane | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| Bromoform | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| Tetrachloroethylene | 57 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,1,2,2-Tetrachloroethane | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| Chlorobenzene | 2300 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 2-chloroethyl vinyl ether | <10 | 10 | ug/l | 8240 | 10/03/00 21:05 | MT |
| benzene | 12 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| toluene | 44 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| ethylbenzene | 7 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| enes(Total) | 22 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| cetone | <50 | 50 | ug/l | 8240 | 10/03/00 21:05 | MT |
| carbon disulfide | <30 | 30 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 2-butanone(MEK) | <50 | 50 | ug/l | 8240 | 10/03/00 21:05 | MT |
| vinyl acetate | <300 | 300 | ug/l | 8240 | 10/03/00 21:05 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 018

PW-120 GRAB 09/21/00 @0955

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|-------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <300 | 300 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 2-hexanone | <300 | 300 | ug/l | 8240 | 10/03/00 21:05 | MT |
| Styrene | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| o-chlorotoluene | 88 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,2-Dichlorobenzene | 2000 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,3-Dichlorobenzene | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| 1,4-Dichlorobenzene | <5 | 5 | ug/l | 8240 | 10/03/00 21:05 | MT |
| Surrogates | | RANGE | | 8240 | 10/03/00 21:05 | MT |
| Dibromofluoromethane | 109 | 86-118% | | 8240 | 10/03/00 21:05 | MT |
| 4-Bromofluorobenzene | 103 | 86-115% | | 8240 | 10/03/00 21:05 | MT |
| Strene-D8 | 104 | 88-110% | | 8240 | 10/03/00 21:05 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 019

SAMPLE DESCRIPTION: PW-130 GRAB 09/21/00 @1120

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|----------|-----------|--------------------|---------|
| pH (field) | 6.8 | | SU | EPA 150.1 | 9/21/00 11:20 | PAP |
| TEMPERATURE (field) | 63.5 | | F | EPA 170.1 | 9/21/00 11:20 | PAP |
| SPECIFIC CONDUCTANCE | 285 | 1 | µMHOS/CM | EPA 120.1 | 9/21/00 11:20 | PAP |
| Dissolved Oxygen | <1.0 | 1.0 | mg/l | EPA 360.1 | 9/21/00 11:20 | PAP |
| Volatile Organic Compounds | | | | | | |
| chloromethane | <10 | 10 | ug/l | 8240 | 10/03/00 22:30 | MT |
| bromomethane | <10 | 10 | ug/l | 8240 | 10/03/00 22:30 | MT |
| vinyl chloride | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| dichlorodifluoromethane | <10 | 10 | ug/l | 8240 | 10/03/00 22:30 | MT |
| chloroethane | <10 | 10 | ug/l | 8240 | 10/03/00 22:30 | MT |
| methylene chloride | <5 | 5 | ug/l | 8240 | 10/03/00 22:30 | MT |
| trichlorofluoromethane | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,1-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,1-dichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| trans-1,2-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| chloroform | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,2-dichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,1,1-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| carbon tetrachloride | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| bromodichloromethane | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,2-dichloropropane | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| cis-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| trichloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| trans-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,1,2-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| Dibromochloromethane | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| Bromoform | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| Tetrachloroethylene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,1,2,2-Tetrachloroethane | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| Chlorobenzene | 370 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 2-chloroethyl vinyl ether | <2 | 2 | ug/l | 8240 | 10/03/00 22:30 | MT |
| benzene | 11 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| toluene | 20 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| ethylbenzene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| oluenes(Total) | 15 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| acetone | <10 | 10 | ug/l | 8240 | 10/03/00 22:30 | MT |
| carbon disulfide | <5 | 5 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 2-butanone(MEK) | <10 | 10 | ug/l | 8240 | 10/03/00 22:30 | MT |
| vinyl acetate | <50 | 50 | ug/l | 8240 | 10/03/00 22:30 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 019

PW-130 GRAB 09/21/00 @1120

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------------|----------------|------------|---------|--------|--------------------|---------|
| 4-methyl-2-pentanone(MIBK) | <50 | 50 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 2-hexanone | <50 | 50 | ug/l | 8240 | 10/03/00 22:30 | MT |
| Styrene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| o-chlorotoluene | 180 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,2-Dichlorobenzene | 82 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,3-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| 1,4-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/03/00 22:30 | MT |
| Surrogates | | RANGE | | 8240 | 10/03/00 22:30 | MT |
| Dibromofluoromethane | 103 | | 86-118% | 8240 | 10/03/00 22:30 | MT |
| 4-Bromofluorobenzene | 95 | | 86-115% | 8240 | 10/03/00 22:30 | MT |
| ne-D8 | 108 | | 88-110% | 8240 | 10/03/00 22:30 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

Method 8240: Detection limits increased as a result of sample dilution. Sample dilution required to achieve target compound response within the calibration range of the analysis.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 020

SAMPLE DESCRIPTION: MW-12S DUPLICATE GRAB 09/22/00 @0900

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|-----------------------------------|----------------|------------|-------|--------|--------------------|---------|
| Volatile Organic Compounds | | | | | | |
| chloromethane | <10 | 10 | ug/l | 8240 | 10/05/00 17:24 | MT |
| bromomethane | <10 | 10 | ug/l | 8240 | 10/05/00 17:24 | MT |
| vinyl chloride | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| dichlorodifluoromethane | <10 | 10 | ug/l | 8240 | 10/05/00 17:24 | MT |
| chloroethane | <10 | 10 | ug/l | 8240 | 10/05/00 17:24 | MT |
| methylene chloride | <5 | 5 | ug/l | 8240 | 10/05/00 17:24 | MT |
| trichlorofluoromethane | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 1,1-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 1,1-dichloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| trans-1,2-dichloroethylene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| chloroform | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 1,2-dichloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 1,1,1-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| carbon tetrachloride | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| bromodichloromethane | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 1,2-dichloropropane | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| cis-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| trichloroethylene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| trans-1,3-dichloropropylene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 1,1,2-Trichloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| Dibromochloromethane | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| Bromoform | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| Tetrachloroethylene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 1,1,2,2-Tetrachloroethane | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| Chlorobenzene | 2 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 2-chloroethyl vinyl ether | <2 | 2 | ug/l | 8240 | 10/05/00 17:24 | MT |
| benzene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| toluene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| ethylbenzene | 1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| xylenes(Total) | 2 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| acetone | <10 | 10 | ug/l | 8240 | 10/05/00 17:24 | MT |
| carbon disulfide | <5 | 5 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 2-butanone(MEK) | <10 | 10 | ug/l | 8240 | 10/05/00 17:24 | MT |
| ethyl acetate | <50 | 50 | ug/l | 8240 | 10/05/00 17:24 | MT |
| methyl-2-pentanone(MIBK) | <50 | 50 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 2-hexanone | <50 | 50 | ug/l | 8240 | 10/05/00 17:24 | MT |
| Styrene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| o-chlorotoluene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 9/22/00

Work Order # 0009-11589

Approved by:

R.I. Analytical

Sample #: 020

MW-12S DUPLICATE GRAB 09/22/00 @0900

| PARAMETER | SAMPLE RESULTS | DET. LIMIT | UNITS | METHOD | ANALYZED DATE/TIME | ANALYST |
|----------------------|----------------|------------|---------|--------|--------------------|---------|
| 1,2-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 1,3-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| 1,4-Dichlorobenzene | <1 | 1 | ug/l | 8240 | 10/05/00 17:24 | MT |
| Surrogates | | | RANGE | 8240 | 10/05/00 17:24 | MT |
| Dibromofluoromethane | 104 | | 86-118% | 8240 | 10/05/00 17:24 | MT |
| 4-Bromofluorobenzene | 106 | | 86-115% | 8240 | 10/05/00 17:24 | MT |
| Toluene-D8 | 89 | | 88-110% | 8240 | 10/05/00 17:24 | MT |

Volatile organic analyses performed under the operating guidelines
method 8260.

RI Analytical Laboratories, Inc.
QA/QC Report

Client: CIBA Specialty Chemicals Corp.
W.O. #: 0009-11589
Date: 10/10/2000

-Method Blank Results-

| Parameter | Units | Results | Date Analyzed |
|--------------------|-------|---------|---------------|
| Benzene | ug/l | <1 | 10/5/2000 |
| Chlorobenzene | ug/l | <1 | 10/5/2000 |
| 1,1-Dichloroethene | ug/l | <1 | 10/5/2000 |
| Toluene | ug/l | <1 | 10/5/2000 |
| Trichloroethylene | ug/l | <1 | 10/5/2000 |

Matrix Spike

| Parameter | Units | Sample # | Sample Conc. | Spike Conc. | Detected Conc. | % Rec. | Date Analyzed |
|--------------------|-------|----------|--------------|-------------|----------------|--------|---------------|
| Benzene | ug/l | 11589-21 | <1 | 8.0 | 7.65 | 96 | 10/5/2000 |
| Chlorobenzene | ug/l | 11589-21 | <1 | 8.0 | 8.7 | 109 | 10/5/2000 |
| 1,1-Dichloroethene | ug/l | 11589-21 | <1 | 8.0 | 10.5 | 131 | 10/5/2000 |
| Toluene | ug/l | 11589-21 | <1 | 8.0 | 7.26 | 91 | 10/5/2000 |
| Trichloroethylene | ug/l | 11589-21 | <1 | 8.0 | 6.0 | 75 | 10/5/2000 |

Matrix Spike Duplicate

| Parameter | Units | Sample # | Sample Conc. | Spike Conc. | Detected Conc. | % Rec. | Date Analyzed |
|--------------------|-------|----------|--------------|-------------|----------------|--------|---------------|
| Benzene | ug/l | 11589-22 | <1 | 8.0 | 7.5 | 94 | 10/5/2000 |
| Chlorobenzene | ug/l | 11589-22 | <1 | 8.0 | 8.5 | 106 | 10/5/2000 |
| 1,1-Dichloroethene | ug/l | 11589-22 | <1 | 8.0 | 10.2 | 128 | 10/5/2000 |
| Toluene | ug/l | 11589-22 | <1 | 8.0 | 7.63 | 95 | 10/5/2000 |
| Trichloroethylene | ug/l | 11589-22 | <1 | 8.0 | 10.0 | 125 | 10/5/2000 |

9/21/00

P-36 S ✓
PW-HD (pump house) ⑧ 2"

Depth to Bottom = 17.9'

Depth to H₂O = 9.9'

Height of Column = 8.0

Amount of Purge = 4.0

| | Volume 1 | Volume 2 | Volume 3 |
|------------------------|----------|----------|----------|
| Purge Start = | 1150 | | |
| pH = | 7.19 | 7.24 | 7.26 |
| Specific Conductance = | 625 | 617 | 615 |
| Temp | 69.3°F | 68.5 | 68.2 |
| "817" | D.O. | 0.7 mg/L | |
| Purge End | 1205 | | |
| Time of Sample | 1210 | | |

* BeC's nest in well Casing sprayed
bee + wasp killer into Casing so we could
sample per Walter Allen.

9-21-00

88 / 58

MW -0015 4" well

Depth to bottom = 18.9

Depth to H₂O = 9.2

Height of Column = 9.7

Amount to purge = 19.4 gallons

| | Vol 1 | Vol 2 | Vol 3 |
|----------------|-------|----------|-------|
| Purge start | 1240 | | |
| pH | 6.80 | 6.66 | 6.54 |
| COND | 437 | 429 | 425 |
| TEMP | 68.2 | 65.4 | 65.3 |
| 202 | D.O. | 0.3 mg/L | |
| Purge End | | 13° | |
| Time of Sample | | 13° | |

9-21-00

PP/SB

P-37 S ✓ 2" well

Depth to Bottom 16.9

Depth to H₂O 10.3

Height of Column 6.6

Amount to Purge ⑩ X 3.3

| | Vol 1 | Vol 2 | Vol 3 |
|------------|---------|----------|-------|
| start time | 2:00 pm | | |
| pH | 6.99 | 7.04 | 7.00 |
| Scans | 554 | 512 | 492 |
| Temp | 76.5 | 72.1 | 70.3 |
| "AX" | DO: | 1.0 mg/L | |
| PURGE END | 1420 | | |
| SAMPETIME | 1425 | | |

9-21-00

PP/BB

Sug - 110' 2" well

Depth to Bottom 34.7

Depth to H₂O 10.0

Height of Column 24.7

Amount to Purge 12.4

| | Vol 1 | Vol 2 | Vol 3 | Vol 4 |
|-------------|-------|----------|-------|-------|
| start time | 14:30 | | | |
| pH | 8.28 | 7.60 | 7.21 | 7.13 |
| SECOND | 374 | 350 | 329 | 324 |
| TEMP | 73.1 | 69.4 | 66.7 | 65.7 |
| "16B" | DO | 1.7 mg/L | | |
| PURGE END | 15:00 | | | |
| SAMPLE TIME | 15:05 | | | |

9/21/00

MW-25' 4"

Depth to bottom = 17.6 18.9

Depth to H₂O = 2.6 3.9

Height of column = 10.00

Amount to Purge = 19.6

| | Well vol. 1 | vol. 2 | Vol. 3 |
|--------------------------------|-------------|----------|--------|
| Purge Start | 0900 | | |
| pH | 6.35 | 6.47 | 6.64 |
| Specific Cond ^{ms/cm} | 664 | 773 | 650 |
| Temp | 70.4°F | 69.8 | 67.6 |
| "BB" | D.D. mg/l | 0.3 mg/L | 69.2 |
| Purge End | 0925 | | |
| Time of Sample | 0930 | | |

Equipment Blank Taken @ 0900

9/21/00

PW - 120 (pump house)

-2

Depth to Bottom = N/A

Depth to H₂O = N/A

Height of Column = N/A

Amount to purge = N/A

| | Volume 1 | Volume 2 | Volume 3 |
|----------------|-----------|----------|----------|
| Purge Start * | 0940 | | |
| pH | 6.77 | 6.71 | 6.72 |
| Specific Cond. | 343 | 341 | 340 |
| Temp | 63.6 °F | 62.8 | 62.5 |
| "AY" | D.O. | 1.7 mg/L | |
| Purge End | 0948.0950 | | |
| Time of Sample | 0955 | | |

* 10 Gallon Purge

9/21/00

2" well

P - 355 ✓

Depth to Bottom = 17.3'

Depth to H₂O = 96

Height of Column = 7.7

Amount to Purge = ~~15.0~~ 3.7

| | Volume 1 | Volume 2 | Volume 3 |
|----------------------|----------|----------|----------|
| Purge Start | 1000 | | |
| pH | 6.91 | 6.93 | 6.92 |
| Specific Conductance | 536 | 527 | 501 |
| Temp | 69.6 °F | 68.1 | 67.9 |
| "196" | D.D. | 0.2 mg/L | |
| Purge End | 1030 | | |
| Time of Sample | 1035 | | |

9/21/00

2"

SW-120 ✓

Depth to bottom = 26.5

Depth to H₂O = 9.6

Height of Column = 16.9

Amount to Purge = 8.4

| | Volume 1 | Volume 2 | Volume 3 |
|----------------|----------|----------|----------|
| Purge Start | 1040 | | |
| pH | 7.74 | 7.15 | 7.00 |
| Specific Cond. | 351 | 233 | 230 |
| Temp | 70.0°F | 68.5 | 66.5 |
| "285" | D.O. | 0.7 mg/L | |
| Purge End | 1100 | | |
| Time of Sample | 1105 | | |

9/20/00

PW - 130 (pump house)

Depth to Bottom = N/A

Depth to H₂O = N/A

Height of Column = N/A

Amount to Purge = N/A

| | Volume 1 | Volume 2 | Volume 3 |
|----------------|----------|----------|----------|
| Purge Start* | 1110 | | |
| pH | 6.80 | 6.80 | 6.81 |
| Specific Cond. | 296 | 286 | 285 |
| Temp | 66.2 °F | 64.7 | 63.5 |
| "BA" | D.O. | 0.9 mg/L | |
| Purge End | 1115 | | |
| Time of Sample | 1120 | | |

* 10 Gallons purged

9/21/00

SW-130 ✓

2"

Depth to Bottom = 35.3'

Depth to H₂O = 10.8'

Height of Column = 24.5'

Amount to Purge = 12.1

| | Volume 1 | Volume 2 | Volume 3 |
|----------------|----------------|----------|----------|
| Purge Start | 1125 | | |
| # | 7.76 | 6.97 | 7.9 6.96 |
| Specific Cond. | 217 | 229 | 227 |
| Temp | 69.3°F | 66.6 | 65.9 |
| "140" | D.O. | 2.1 mg/L | |
| | Purge End | 1135 | |
| | Time of Sample | 1140 | |

9/21/00

⑩

P-365 PW-110 (pump house) 2nd ⑪

Depth to Bottom =

Depth to H₂O =

Height of Column =

Amount to Purge = 10 gallons

| | Volume 1 | Volume 2 | Volume 3 |
|----------------|----------|----------|----------|
| Purge Start | 1215 | | |
| pH | 6.96 | 6.76 | 6.71 |
| Specific Cond. | 264 | 258 | 257 |
| Temp | 64.5°F | 62.8 | 61.7 |
| "115" D.D. | 1.1 mg/L | | |
| Purge End | 1225 | | |
| Time of Sample | 1230 | | |

- 10 gallon Purge -

9/21/00

P-385

2"

Depth to Bottom = 18.3

Depth to H₂O = 8.5

Height of Column = 98

Amount to Purge = 4.9

| | Vol 1 | Vol 2 | Vol 3 |
|----------------|----------|-------|-------|
| Purge Start | 1510 | | |
| pH | 6.59 | 6.50 | 6.49 |
| Specific Cond | 295 | 275 | 275 |
| Temp | 74.2 | 70.2 | 68.2 |
| "BN" D.O. | 2.6 mg/l | | |
| Purge End | 1530 | | |
| Time of Sample | 1535 | | |

9-22-00

PP/JB

MW-12S ✓ 4"

Depth to Bottom = 22.0

Depth to H₂O = 12.0

Height of Column = 10.00

Amount to Purge = 19.5

| | vo11 | vo12 | vo13 |
|----------------|---------|------|------|
| Purgestart | | | |
| pH | 6.65 | 6.75 | 6.85 |
| SCOND | 292 | 287 | 285 |
| Temp | 64.1 | 64.2 | 63.9 |
| "BD" | Do mg/l | 1.1 | |
| PurgeEnd | | | |
| Time of Sample | | | |

** Oily Sheen on Surface of H₂O

* Duplicate

* Matrix spike

* Matrix spike Duplicate

922.00

PP/SB

MW - 004.5 ✓

Depth to Bottom = 21.4

Depth to H₂O = 12.1

Height of Column = 9.3

Amount to Purge = 18.6

| | VOL1 | VOL2 | VOL3 |
|--------------|------|------|------|
| Purge start | | | |
| pH | 6.33 | 6.31 | 6.40 |
| SCOND | 382 | 420 | 426 |
| Temp | 63.1 | 64.1 | 65.2 |
| "AT" DO mg/l | 2.0 | | |
| Purge END | | | |
| Sample Time | | | |

9-22-00

PP/SR

MW - 215 ✓

Depth to Bottom : 17.7

Depth to HzO : 5.5

Height of Column : 12.2

Amount to Purge : 24.0

| | Vol 1 | Vol 2 | Vol 3 |
|-------------|-------------|-------|-------|
| Purge start | | | |
| pH | 6.51 | 6.43 | 6.46 |
| Scand | 221 | 300 | 298 |
| Temp | 65.1 | 68.3 | 66.2 |
| "BT" | DO mg/l | 1.9 | |
| | PURGE END | | |
| | SAMPLE Time | | |

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: (401) 737-8500
Fax: (401) 738-1970

950 Boylston Street, Unit 102
Newton Highlands, MA 02461
Phone: (617) 965-5133
Fax: (617) 965-5624

CHAIN OF CUSTODY RECORDPage 1 of 2

Container Type Codes:
P=Plastic AG=Amber Glass
G=Glass St=Sterile
V=Vial
O=Other (describe)

Preservative Codes:
NP=Non preserved S=Sulfuric
I=Cooled 4°C H=HCL
N=Nitric SH=NaOH
M=Methanol SB=NaHSO4

Matrix Codes:
GW=Groundwater S=Soil
WW=Wastewater SI=Sludge
DW=Drinking water A=Air
O=Other (describe) B=Bulk/Solid

| Date Collected | Time Collected | Sample ID | G=Grab C=Comp. | Containers # + (code) | Preservative (code) | Matrix (code) | Analysis Request | | | |
|----------------|----------------|-----------|----------------|-----------------------|---------------------|---------------|--|---|---|---|
| 9/21/00 | 0930 | MW-025 | G | 2-V | H | GW | 8040 including o-chlorotoluene/pH/Temp/S.C./D.O. | | | |
| 9/21/00 | 1105 | SW-120 | G | 2-V | H | GW | | | | |
| 9/21/00 | 1035 | P-355 | G | 2-V | H | GW | | | | |
| 9/21/00 | 1210 | P-365 | G | 2-V | H | GW | | | | |
| 9/21/00 | 1305 | MW-015 | G | 2-V | H | GW | | | | |
| 9/21/00 | 1140 | SW-130 | G | 2-V | H | GW | | | | |
| 9/21/00 | 1425 | P-375 | G | 2-V | H | GW | | | | |
| 9/21/00 | 1505 | SW-110 | G | 2-V | H | GW | | | | |
| 9/21/00 | 1535 | P-385 | G | 2-V | H | GW | | | | |
| 9/22/00 | 0900 | MW-125 | G | 2-V | H | GW | ↓ | ↓ | ↓ | ↓ |

Client Information

| | |
|------------------------------------|--|
| Company Name: <i>Ciba Geigy</i> | Project Name / Location: <i>Ciba Geigy Site on Mill St., Cranston, RI</i> |
| Address: | P.O. Number / Project Number: |
| City / State / Zip: | Project Manager / Report To: |
| Phone: (903)-914-2737 | Sampled by: <i>Justin Blair / Paul Perrotti</i> |
| Contact: <i>Barry Cohen</i> | Reference Proposal: |

| Relinquished by: | Date | Time | Received by: | Date | Time |
|---------------------|---------|------|--------------------|---------|------|
| <i>Justin Blair</i> | 9/22/00 | 1230 | <i>M. J. Blair</i> | 9/22/00 | 1000 |
| | | | | | |
| | | | | | |

Turn Around Time:

Normal

5 business days
Surcharges may apply

Rush (business days)

Project Comments:

* pH, Temp, S.C., D.O.
Taken in field. Field
notes and results
attached

RIAL USE ONLY:

Pick-Up Only

RIAL Sampled

Shipped on Ice
RIAL W.O. # *11589*

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: (401) 737-8500
Fax: (401) 738-1970

950 Boylston Street, Unit 102
Newton Highlands, MA 02461
Phone: (617) 965-5133
Fax: (617) 965-5624

CHAIN OF CUSTODY RECORD

Page 2 of 3

Container Type Codes:
P=Plastic V=Vial
G=Glass St=Sterile
AG=Amber Glass
O=Other (describe)

Preservative Codes:
NP=Non preserved S=Sulfuric
I=Cooled 4°C H=HCL
N=Nitric SH=NaOH
M=Methanol SB=NAHSO4

Matrix Codes:
GW=Groundwater S=Soil
WW=Wastewater SI=Sludge
DW=Drinking Water A=Air
O=Other (describe) B=Bulk/Solid

| Date Collected | Time Collected | Sample ID | G=Grab C=Comp. | Containers # + (code) | Preservative (code) | Matrix (code) | Analysis Request |
|----------------|----------------|--------------------------|----------------|-----------------------|---------------------|---------------|--|
| 9/27/00 | 0900 | MW-125 Duplicate | G | 2-V | H | GW | SD40 including O-chlorotoluene |
| 9/27/00 | 0900 | MW-125 Matrix Spike | G | 2-V | H | GW | |
| 9/27/00 | 0900 | MW-125 Matrix Spike Dyo. | G | 2-V | H | GW | |
| 9/27/00 | 1000 | MW-215 | G | 2-V | H | GW | SD40 including O-chlorotoluene/pH/Temp/SC/DW |
| 9/27/00 | 0930 | MW-045 | G | 2-V | H | GW | ↓ ↓ ↓ ↓ ↓ ↓ ↓ |
| 9/21/00 | 0800 | Trip Blank | G | 1-V | H | GW | SD40 including O-chlorotoluene |
| 9/21/00 | 0900 | Equipment Blank | G | 1-V | H | GW | |
| 9/21/00 | 0900 | Trip Blank | G | 1-V | H | GW | |
| 9/22/00 | 0900 | Equipment Blank | G | 1-V | H | GW | ↓ |
| 9/21/00 | 1230 | PW-110 | G | 2-V | H | GW | SD40 including O-chlorotoluene/pH/Temp/SC/DW |

Client Information

| | |
|---------------------------------|---|
| Company Name: <i>Ciba Geigy</i> | Project Name / Location: <i>Ciba Geigy site on Mill St., Cranston, RI</i> |
| Address: | P.O. Number: Project Number: |
| City / State / Zip: | Report To: Phone: Fax: |
| Phone: (903)-914-8737 | Fax: 903-914-2909 |
| Contact: <i>Barry Cohen</i> | Sampled by: <i>Justin Blair / Paul Porrotti</i> |
| | Reference Proposal: |

| Relinquished by: | Date | Time | Received by: | Date | Time |
|------------------|---------|------|--------------|---------|------|
| <i>ASB</i> | 9/22/00 | 1230 | <i>mt/mw</i> | 9/22/00 | 1:00 |
| | | | | | |
| | | | | | |

Turn Around Time:

Normal

5 business days
Surcharges may apply

Rush _____ (business days)

Project Comments:

* pH, Temp, SC, DO.
Taken in Field, Field
Notes and Results attached

RIAL USE ONLY:

Pick-Up Only

RIAL Sampled

Shipped on Ice

RIAL W.O. # *11589*

APPENDIX C
TIME-SERIES
FOR
UPGRADIENT WELLS

Table 3
UPGRADIENT WELLS
Cumulative Results for Chemicals Of Concern
(Units in ppb)

| Well No. | Date Sampled | 1,2-Dichlorobenzene | Chlorobenzene | o-Chlorotoluene | Toluene | Xylenes |
|----------|--------------|---------------------|---------------|-----------------|---------|---------|
| MPS | | 94 | 1700 | 1500 | 1700 | 76 |
| MW-004S | 6-Mar-96 | 89 | 210 | 1700 | 2100 | 300 |
| MW-004S | 1-May-96 | 88 | 130 | 1200 | 1500 | 160 |
| MW-004S | 9-Apr-97 | 43 | 44 | 160 | 88 | 100 |
| MW-004S | 8-Oct-97 | 72 | 41 | 660 | 370 | 480 |
| MW-004S | 28-Apr-98 | 40 | 220 | 1200 | 2700 | 130 |
| MW-004S | 15-Oct-98 | 100 U | 580 | 300 | 100 U | 100 U |
| MW-004S | 16-Apr-99 | 50 U | 50 U | 50 | 50 U | 730 |
| MW-004S | 27-Sep-99 | 31 | 93 | 400 | 20 U | 79 |
| MW-004S | 20-Apr-00 | 74 | 20 U | 20 U | 84 | 20 U |
| MW-004S | 22-Sep-00 | 30 U | 30 U | 30 U | 30 U | 30 U |
| MW-012S | 5-Mar-96 | 4.3 U | 2.4 J | 2 U | 2.8 U | 75 |
| MW-012S | 2-May-96 | 4.3 U | 1.5 J | 2 U | 2.8 U | 42 |
| MW-012S | 10-Apr-97 | 1 U | 1 U | 1 U | 1 U | 1 U |
| MW-012S | 8-Oct-97 | 1 U | 1 U | 1 U | 1 U | 12 |
| MW-012S | 28-Apr-98 | 1 U | 1 U | 1 U | 1 U | 65 |
| MW-012S | 15-Oct-98 | 10 U | 10 U | 10 U | 10 U | 87 |
| MW-012S | 16-Apr-99 | 10 U | 12 | 10 U | 10 U | 24 |
| MW-012S | 27-Sep-99 | 58 | 1 U | 1 U | 1 U | 6 |
| MW-012S | 20-Apr-00 | 1 U | 1 U | 1 U | 1 U | 1 |
| MW-012S | 22-Sep-00 | 1 U | 1 U | 1 U | 1 U | 1 |
| MW-021S | 6-Mar-96 | 43 U | 30 U | 480 | 12 J | 34 U |
| MW-021S | 1-May-96 | 22 U | 5 J | 820 | 15 | 17 U |
| MW-021S | 10-Apr-97 | 1 U | 1 U | 120 | 1 | 6 |
| MW-021S | 27-Oct-97 | 30 | 49 | 24000 | 20000 | 1600 |
| MW-021S | 28-Apr-98 | 1 U | 1 U | 54 | 1 U | 1 U |
| MW-021S | 15-Oct-98 | 100 U | 100 U | 7900 | 2500 | 580 |
| MW-021S | 15-Apr-99 | 50 U | 50 U | 9000 | 50 U | 520 |
| MW-021S | 27-Sep-99 | 40 U | 40 U | 8100 | 40 U | 40 U |
| MW-021S | 20-Apr-00 | 40 U | 40 U | 40 U | 40 U | 40 U |
| MW-021S | 22-Sep-00 | 500 U | 500 U | 500 U | 500 U | 500 U |

MPS = Media Protection Standard

U = Nondetect with detection limit given

J = Estimated value

1,2 Dichlorobenzene MPS=94 PPB

Chlorobenzene MPS=1700 PPB

o-chlorotoluene MPS=1500 ppb

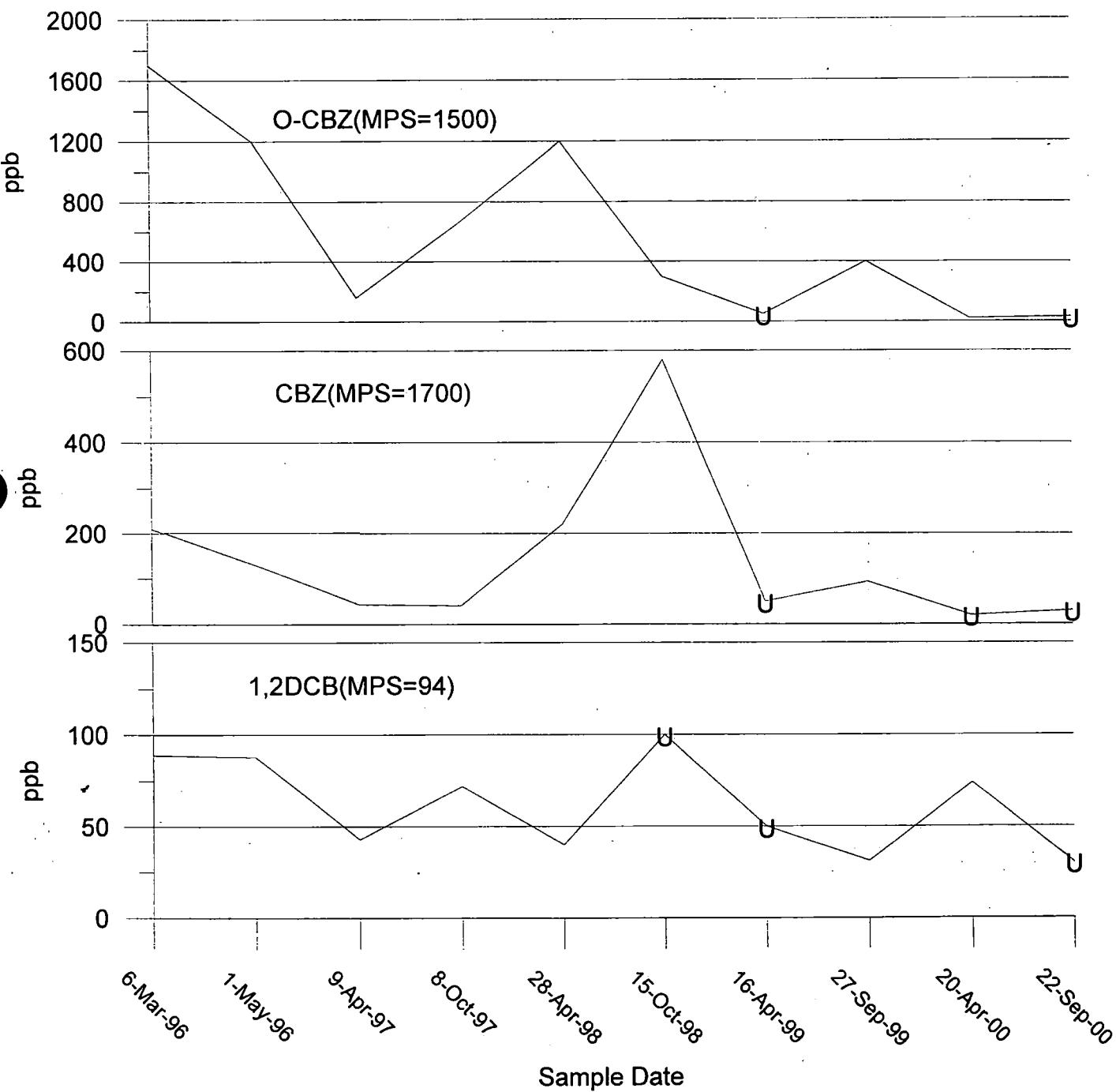
toluene MPS=1700 ppb

xylenes MPS=76 ppb

Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-004S
Upgradient Well

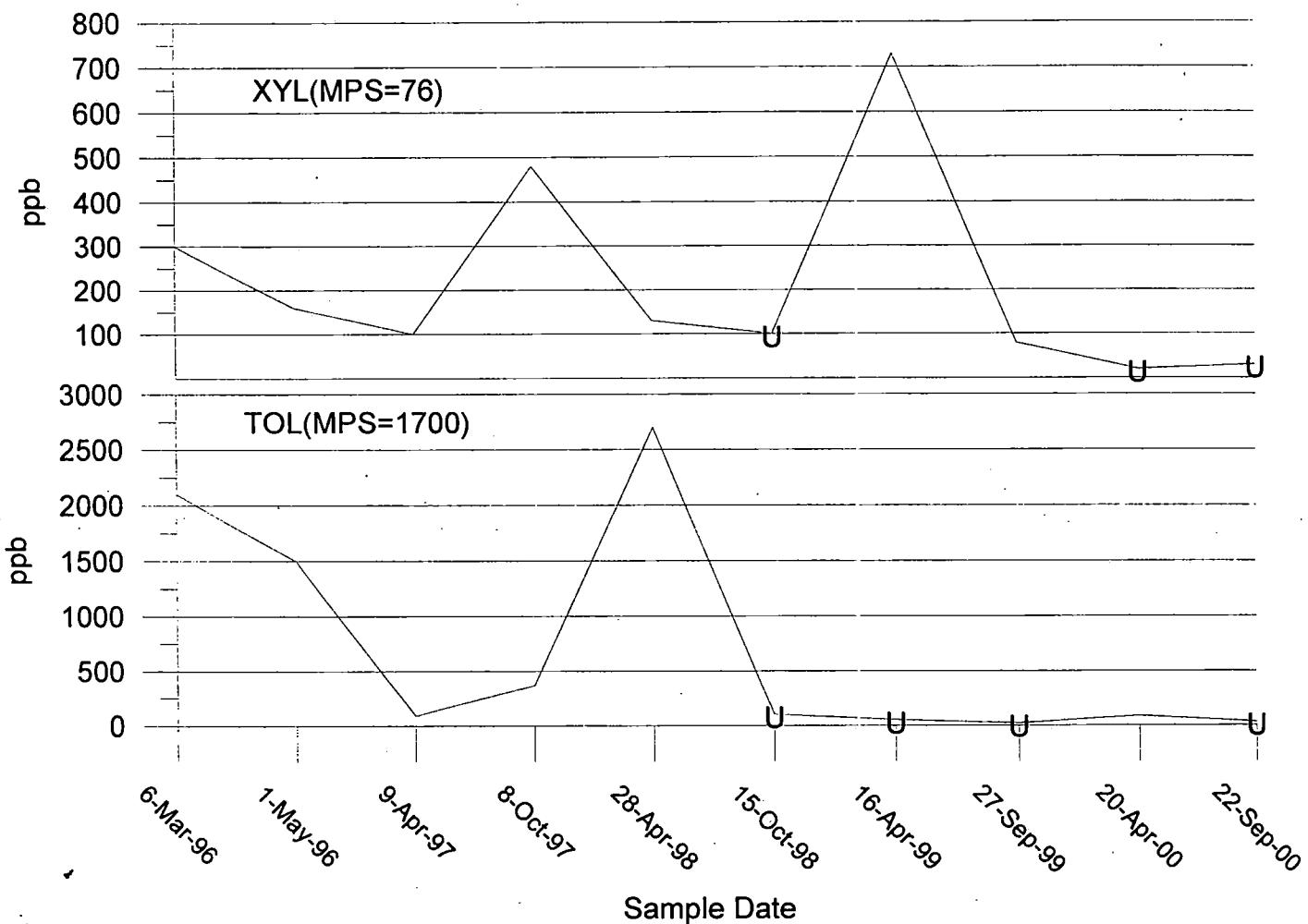
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semianual Monitoring

Well MW-004S
Upgradient Well

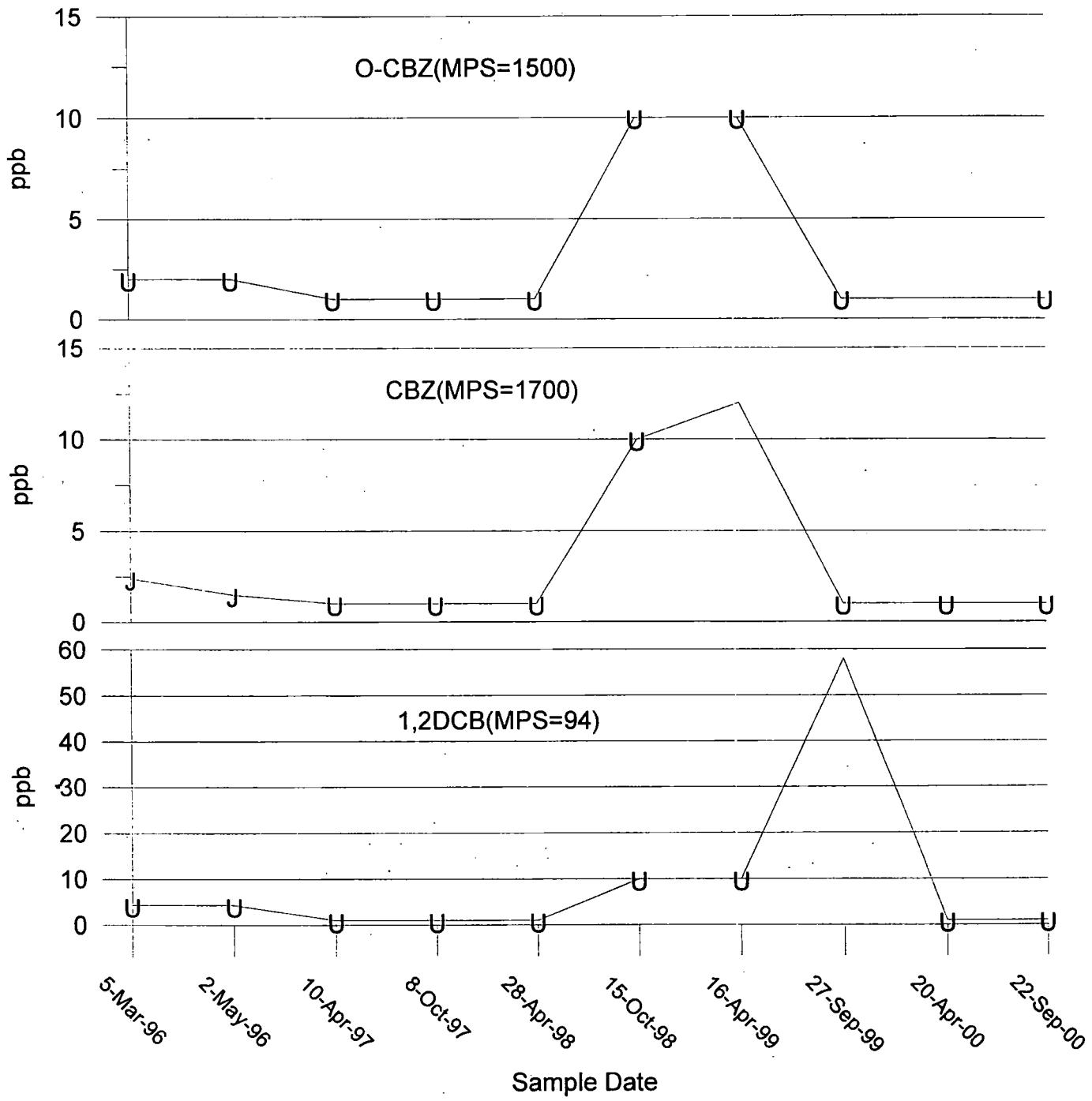
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-012S
Upgradient Well

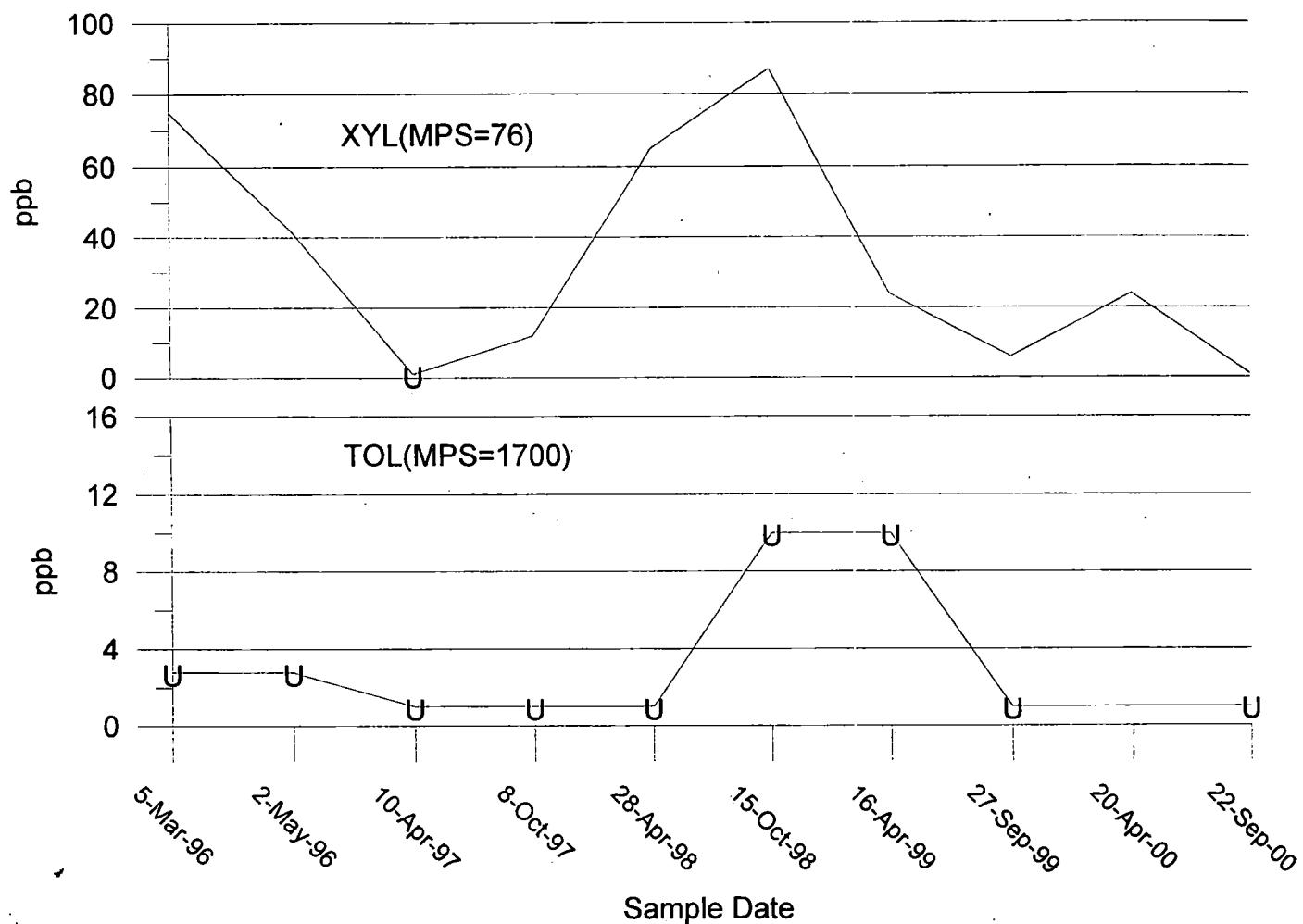
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-012S
Upgradient Well

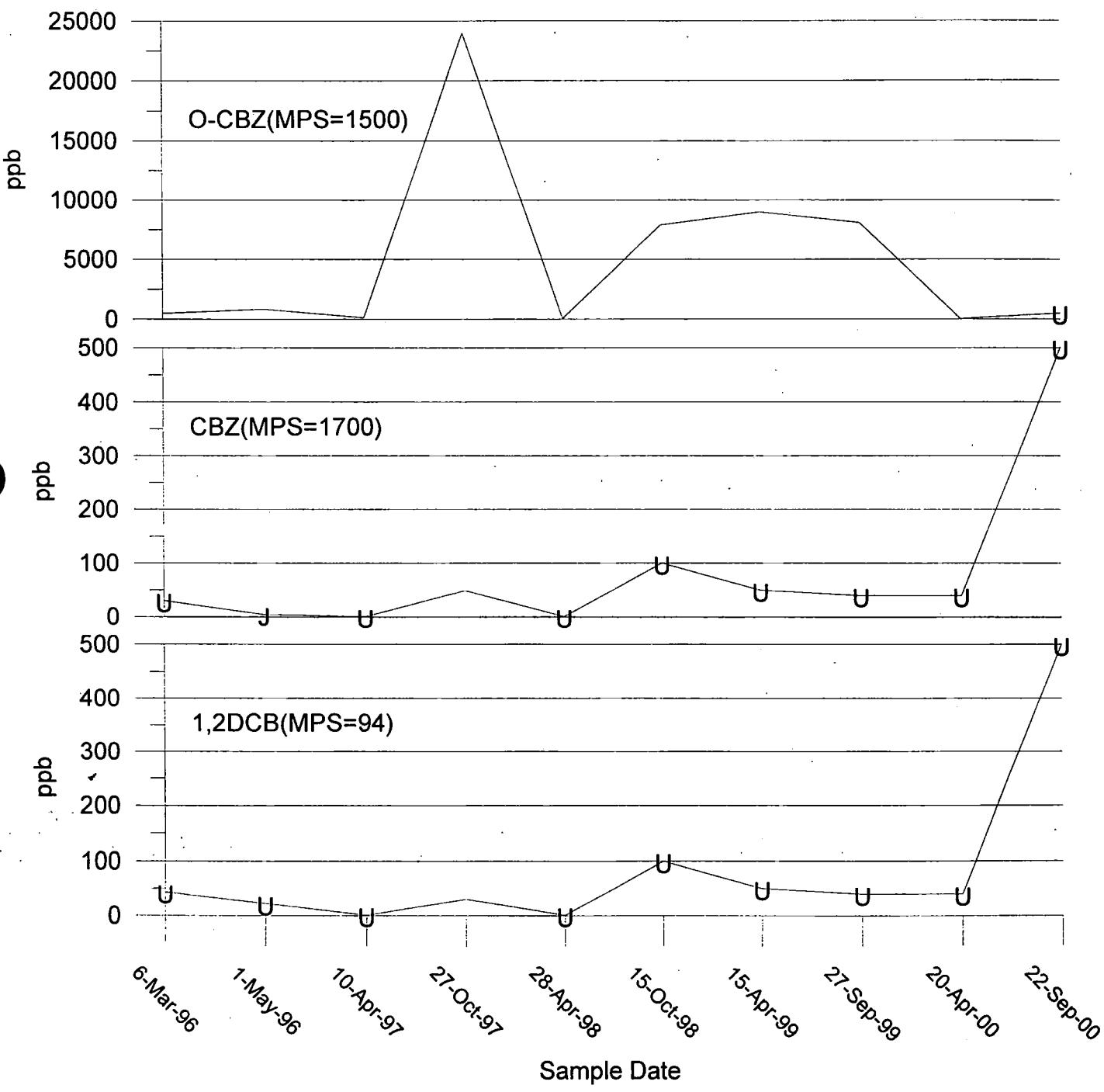
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-021S
Upgradient Well

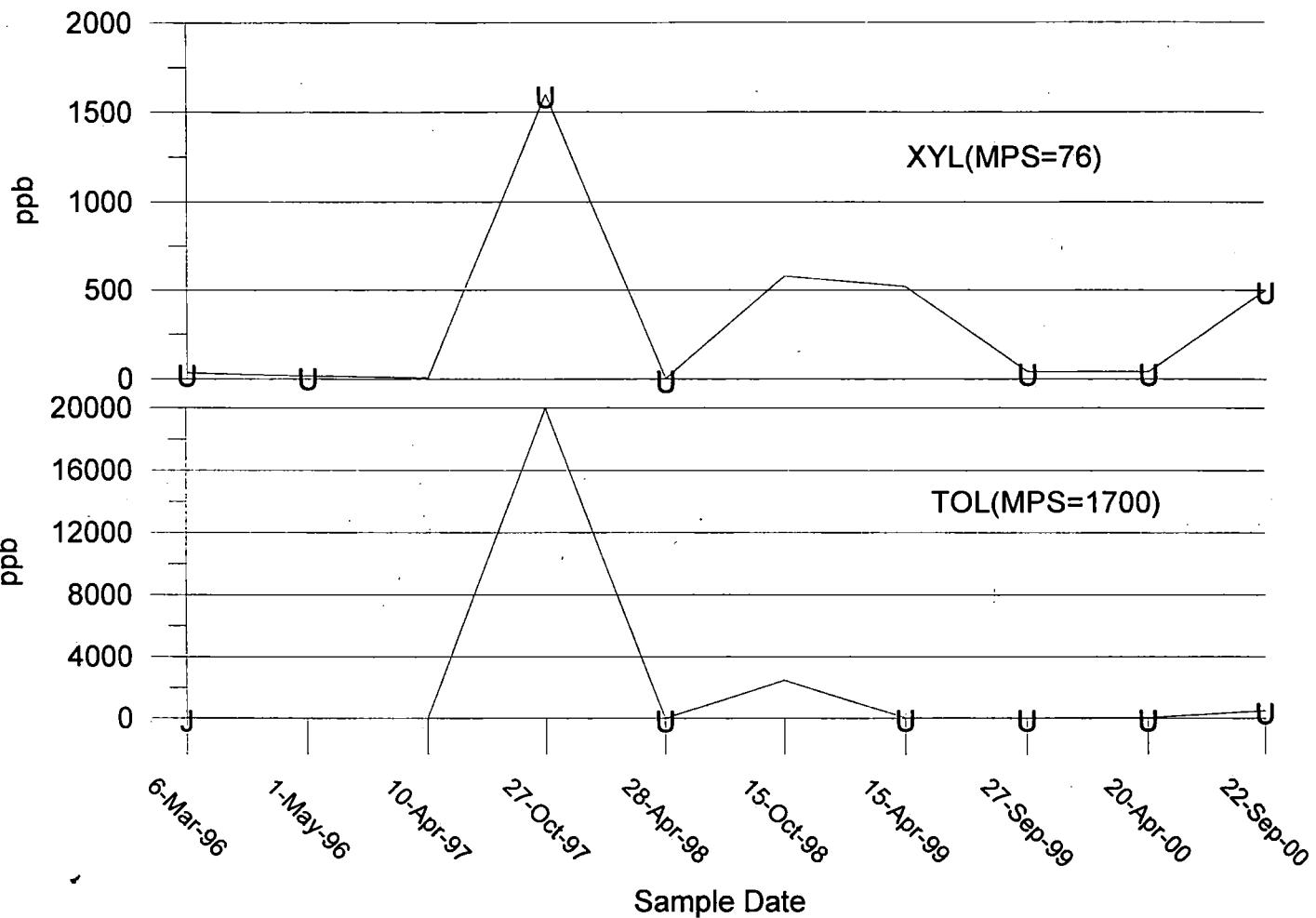
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-021S
Upgradient Well

"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



APPENDIX D
TIME-SERIES GRAPHS
FOR
BULKHEAD WELLS

Table 4
BULKHEAD WELLS
Cumulative Results for Chemicals Of Concern
(Units In ppb)

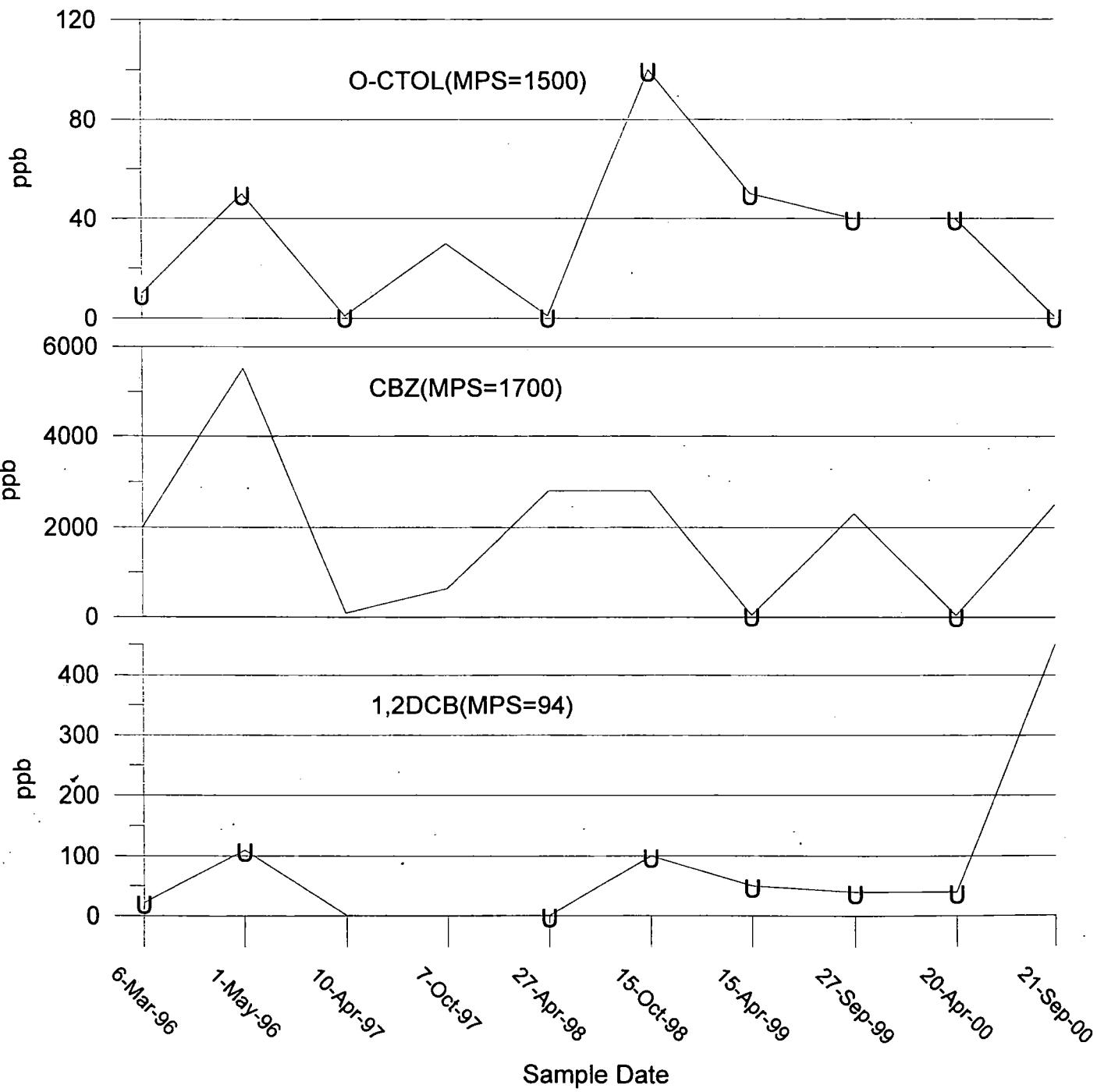
| Well No. | Date Sampled | 1,2-Dichloro-benzene | Chloro-benzene | o-Chloro-toluene | Toluene | Xylenes |
|----------|--------------|----------------------|----------------|------------------|---------|---------|
| MPS | | 94 | 1700 | 1500 | 1700 | 76 |
| MW-001S | 6-Mar-96 | 22 U | 2000 | 10 U | 16 | 18 |
| MW-001S | 1-May-96 | 110 U | 5500 | 50 U | 30 J | 85 U |
| MW-001S | 10-Apr-97 | 1 | 93 | 1 U | 9 | 7 |
| MW-001S | 7-Oct-97 | 1 | 640 | 30 | 23 | 2 |
| MW-001S | 27-Apr-98 | 1 U | 2800 | 1 U | 1 | 2 |
| MW-001S | 15-Oct-98 | 100 U | 2800 | 100 U | 100 U | 100 U |
| MW-001S | 15-Apr-99 | 50 U | 50 | 50 U | 50 U | 50 U |
| MW-001S | 27-Sep-99 | 40 U | 2300 | 40 U | 40 U | 40 U |
| MW-001S | 20-Apr-00 | 40 U | 40 U | 40 U | 40 U | 40 U |
| MW-001S | 21-Sep-00 | 450 | 2500 | 1 U | 1 U | 1 U |
| MW-002S | 5-Mar-98 | 340 | 3200 | 50 U | 200 | 85 U |
| MW-002S | 30-Apr-96 | 44 J | 2500 | 50 U | 52 J | 85 U |
| MW-002S | 8-Apr-97 | 20 | 64 | 1 U | 46 | 18 |
| MW-002S | 7-Oct-97 | 90 | 440 | 100 | 97 | 31 |
| MW-002S | 27-Apr-98 | 22 | 500 | 1 U | 88 | 28 |
| MW-002S | 15-Oct-98 | 28 | 5200 | 1 U | 92 | 34 |
| MW-002S | 15-Apr-99 | 140 | 2260 | 10 U | 420 | 33 |
| MW-002S | 27-Sep-99 | 43 | 40 U | 40 U | 40 U | 40 U |
| MW-002S | 20-Apr-00 | 1340 | 12000 | 150 | 830 | 120 |
| MW-002S | 21-Sep-00 | 930 | 9400 | 500 U | 500 U | 500 U |
| P-035S | 8-Apr-97 | 22 | 74 | 1 U | 4 | 12 |
| P-035S | 7-Oct-97 | 240 | 710 | 2 | 10 | 12 |
| P-035S | 27-Apr-98 | 42 | 360 | 1 U | 2 | 10 |
| P-035S | 15-Oct-98 | 140 | 2100 | 10 U | 130 | 80 |
| P-035S | 15-Apr-99 | 20 | 480 | 10 U | 10 U | 10 U |
| P-035S | 27-Sep-99 | 40 U | 40 U | 40 U | 40 U | 40 U |
| P-035S | 20-Apr-00 | 4580 | 77000 | 300 | 160 | 56 |
| P-035S | 21-Sep-00 | 6600 | 500 U | 500 U | 500 U | 500 U |
| P-036S | 6-Mar-96 | 22 U | 440 | 10 U | 14 U | 17 U |
| P-036S | 1-May-96 | 22 U | 460 | 30 | 14 U | 17 U |
| P-036S | 8-Apr-97 | 1 U | 72 | 1 U | 1 U | 2 |
| P-036S | 7-Oct-97 | 1 U | 35 | 9 | 2 | 1 U |
| P-036S | 27-Apr-98 | 1 U | 260 | 1 U | 1 U | 1 U |
| P-036S | 15-Oct-98 | 1 U | 230 | 1 U | 1 U | 1 |
| P-036S | 15-Apr-99 | 10 U | 200 | 10 U | 10 U | 10 U |
| P-036S | 27-Sep-99 | 10 U | 450 | 10 U | 10 U | 10 U |
| P-036S | 20-Apr-00 | 1 U | 290 | 1 U | 1 U | 1 U |
| P-036S | 21-Sep-00 | 30 U | 300 | 30 U | 30 U | 30 U |
| P-037S | 9-Apr-97 | 2 U | 54 | 16 | 1 U | 1 |
| P-037S | 8-Oct-97 | 2 | 50 | 13 | 1 U | 1 U |
| P-037S | 28-Apr-98 | 2 | 420 | 8 | 1 U | 1 U |
| P-037S | 15-Oct-98 | 30 U | 540 | 30 U | 30 U | 30 U |
| P-037S | 15-Apr-99 | 10 U | 210 | 10 U | 10 U | 10 U |
| P-037S | 27-Sep-99 | 10 U | 660 | 10 U | 10 U | 10 U |
| P-037S | 20-Apr-00 | 1 U | 460 | 5 | 1 U | 1 U |
| P-037S | 21-Sep-00 | 30 U | 370 | 30 U | 30 U | 30 U |
| P-038S | 6-Mar-96 | 4.3 U | 2.4 J | 2 U | 1.3 J | 3.4 U |
| P-038S | 1-May-96 | 4.3 U | 1.2 J | 2 U | 2.8 U | 3.4 U |
| P-038S | 9-Apr-97 | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-038S | 8-Oct-97 | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-038S | 28-Apr-98 | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-038S | 15-Oct-98 | 1 U | 2 | 1 U | 1 U | 1 U |
| P-038S | 15-Apr-99 | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-038S | 27-Sep-99 | 1 U | 1 | 1 U | 1 U | 1 U |
| P-038S | 20-Apr-00 | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-038S | 21-Sep-00 | 1 U | 1 | 1 U | 1 U | 1 U |

MPS = Media Protection Standard
U = Nondetect with detection limit given
J = Estimated value
1,2 Dichlorobenzene MPS=94 PPB
Chlorobenzene MPS=1700 PPB
o-chlorotoluene MPS=1500 ppb
toluene MPS=1700 ppb
xylenes MPS=76 ppb

Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-001S
Along Bulkhead

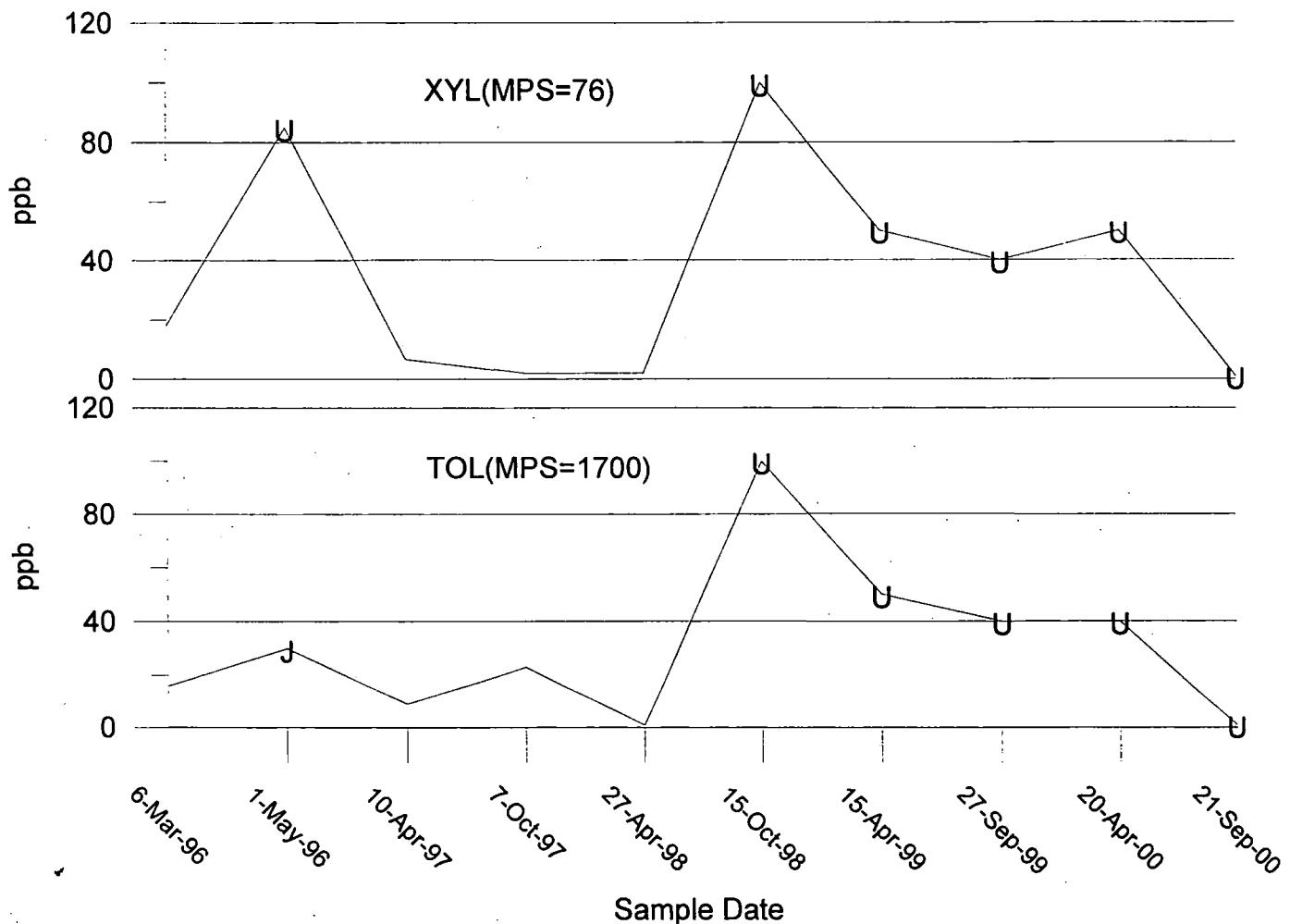
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-001S
Along Bulkhead

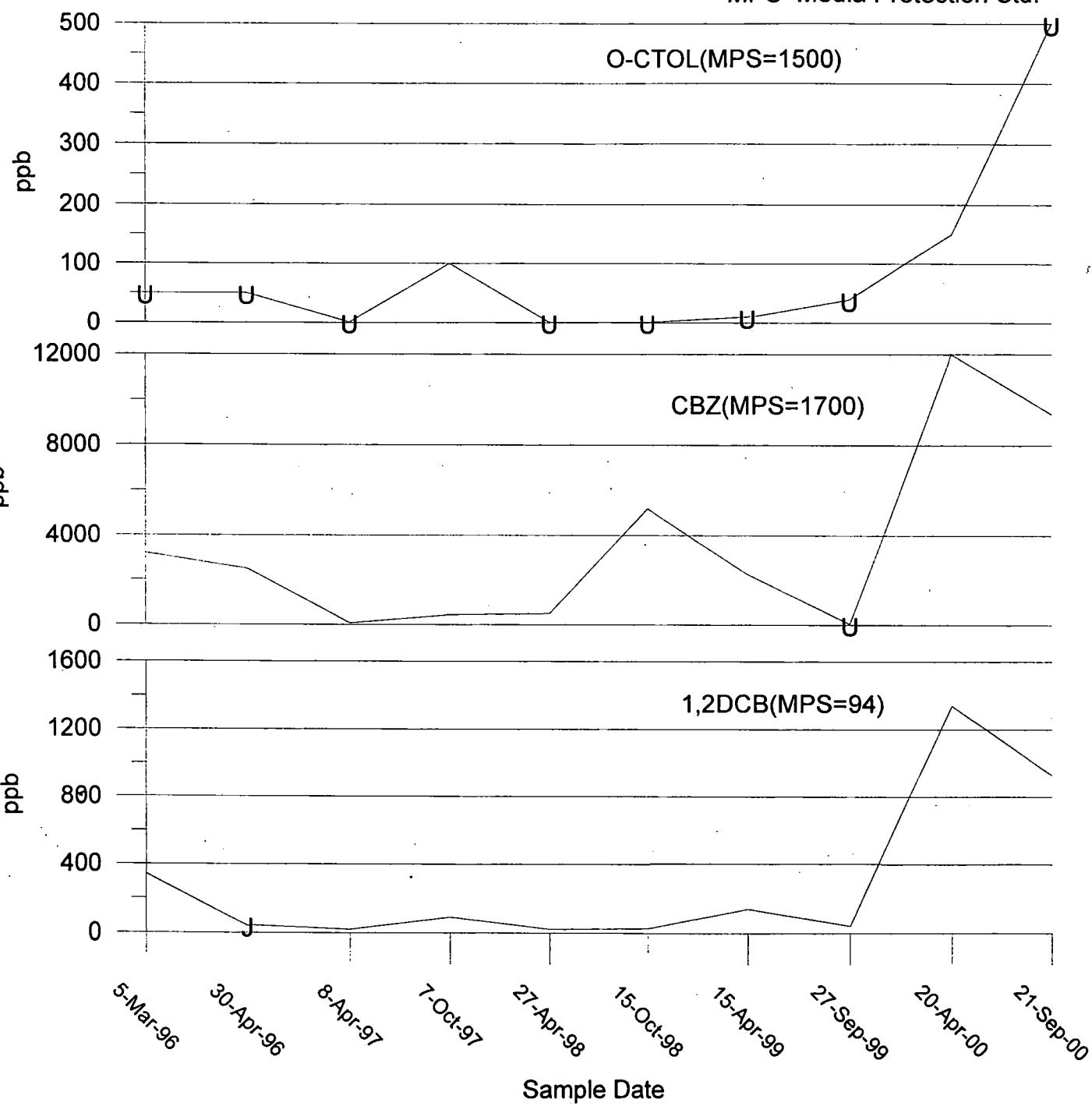
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-002S
Along Bulkhead

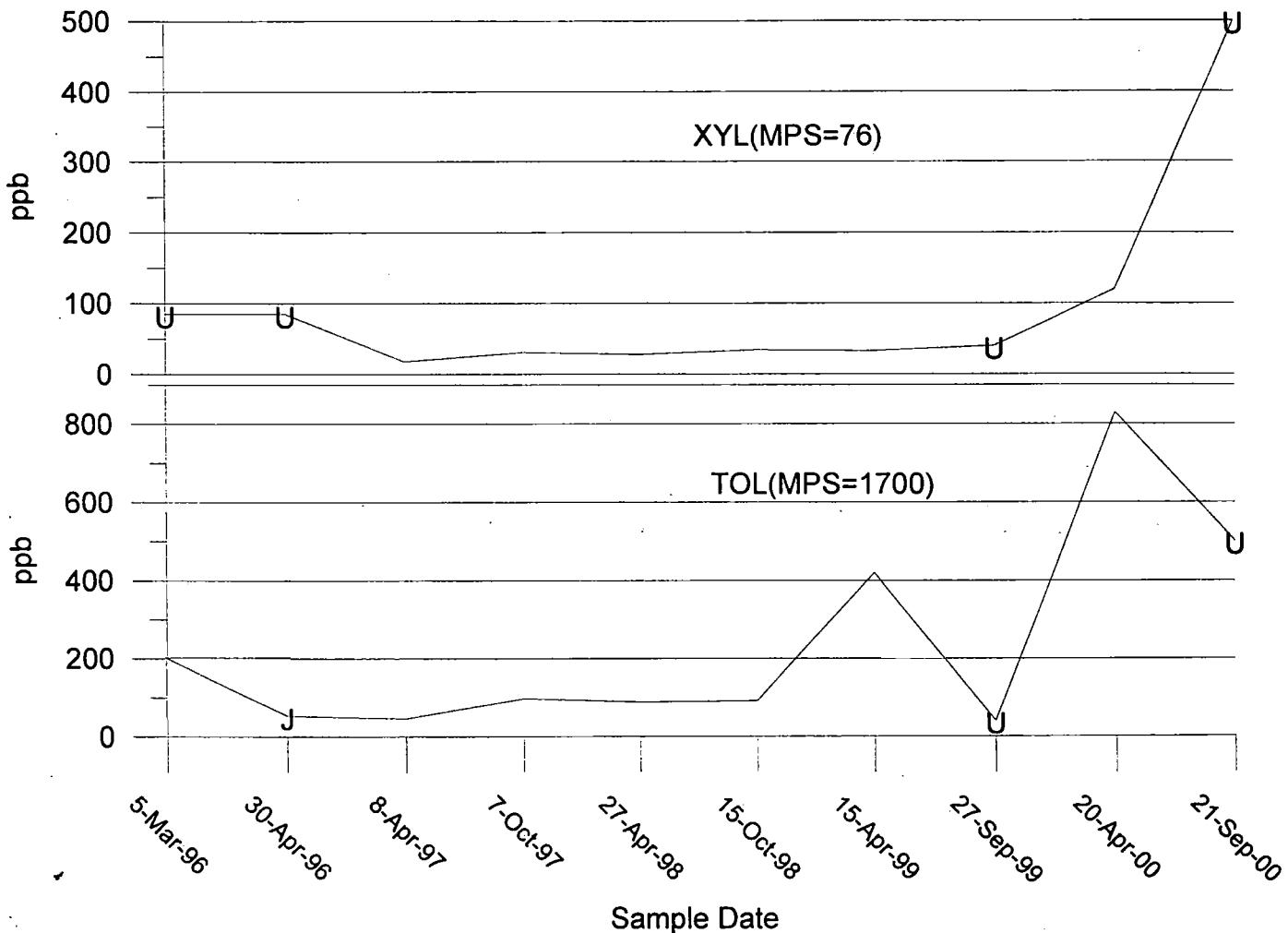
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-002S
Along Bulkhead

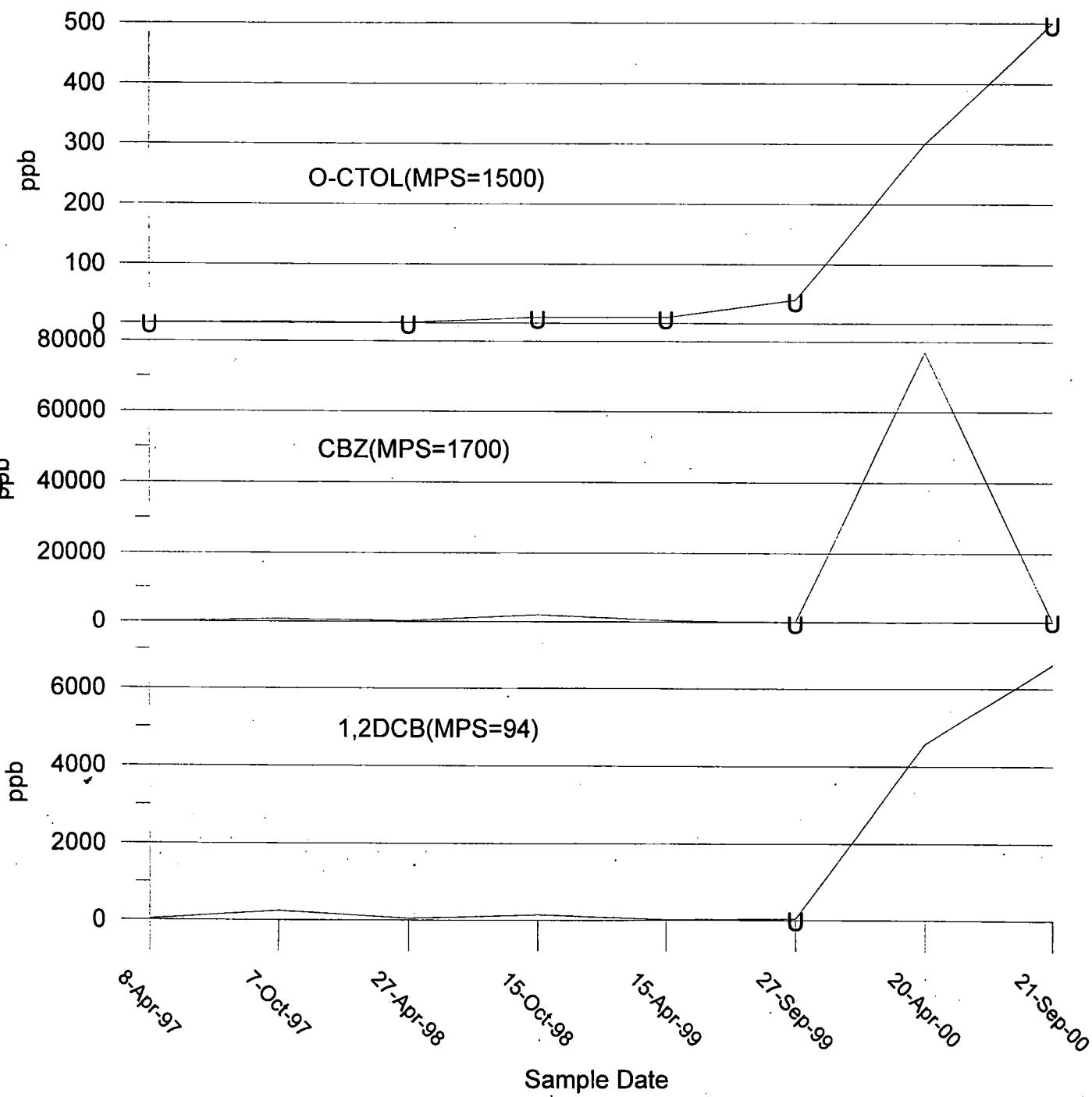
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-035S
Along Bulkhead

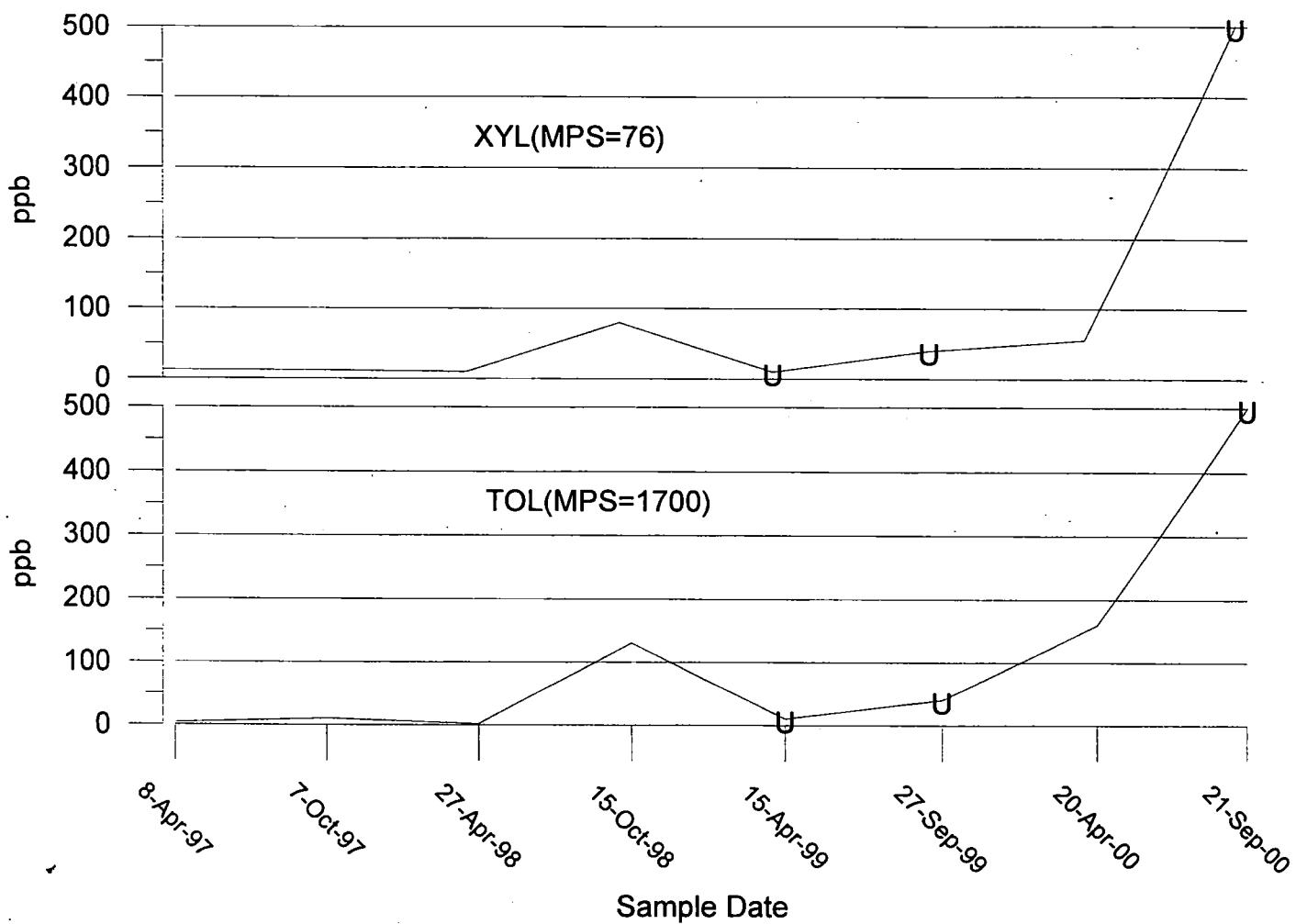
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-035S
Along Bulkhead

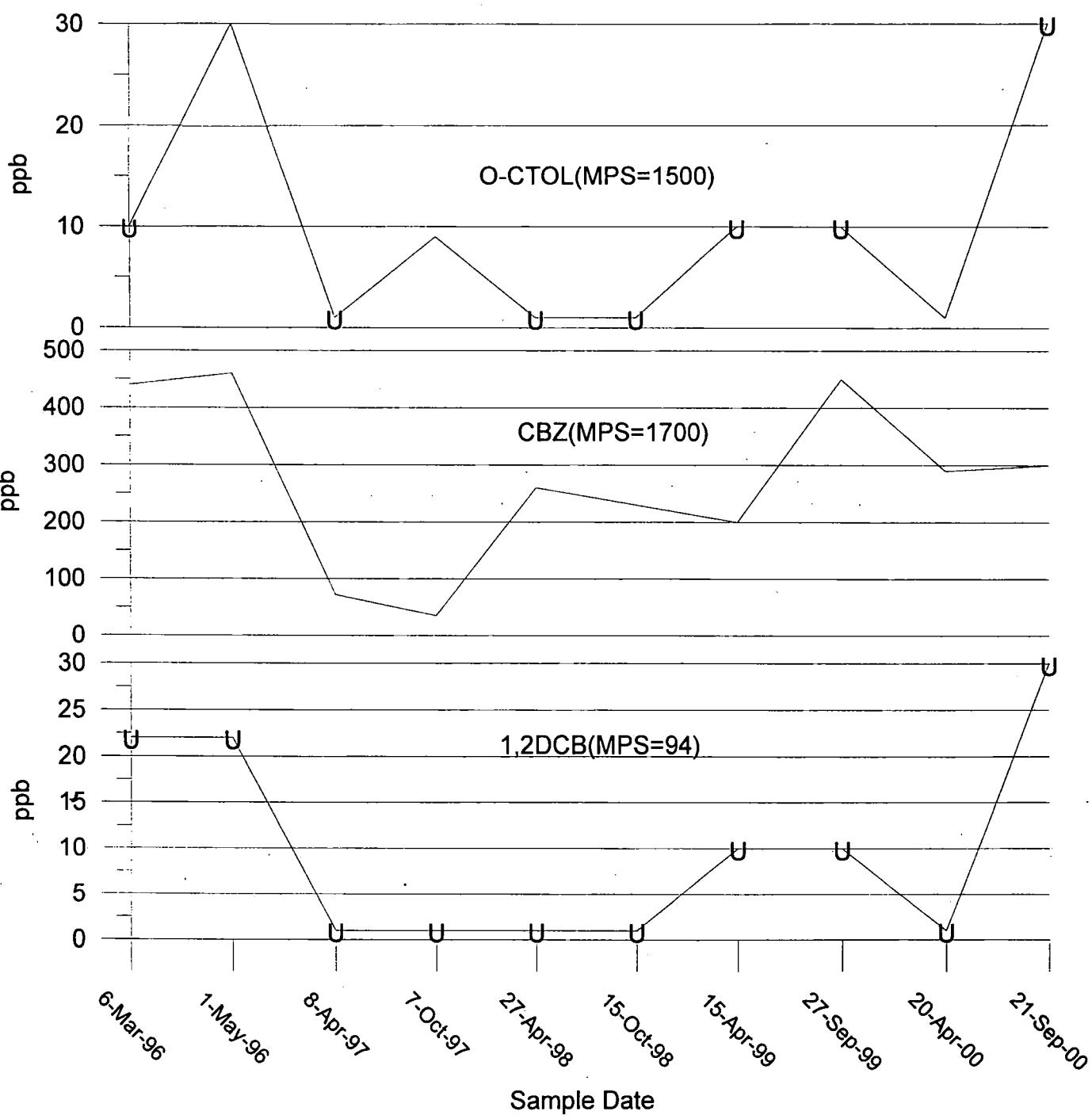
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-036S
Along Bulkhead

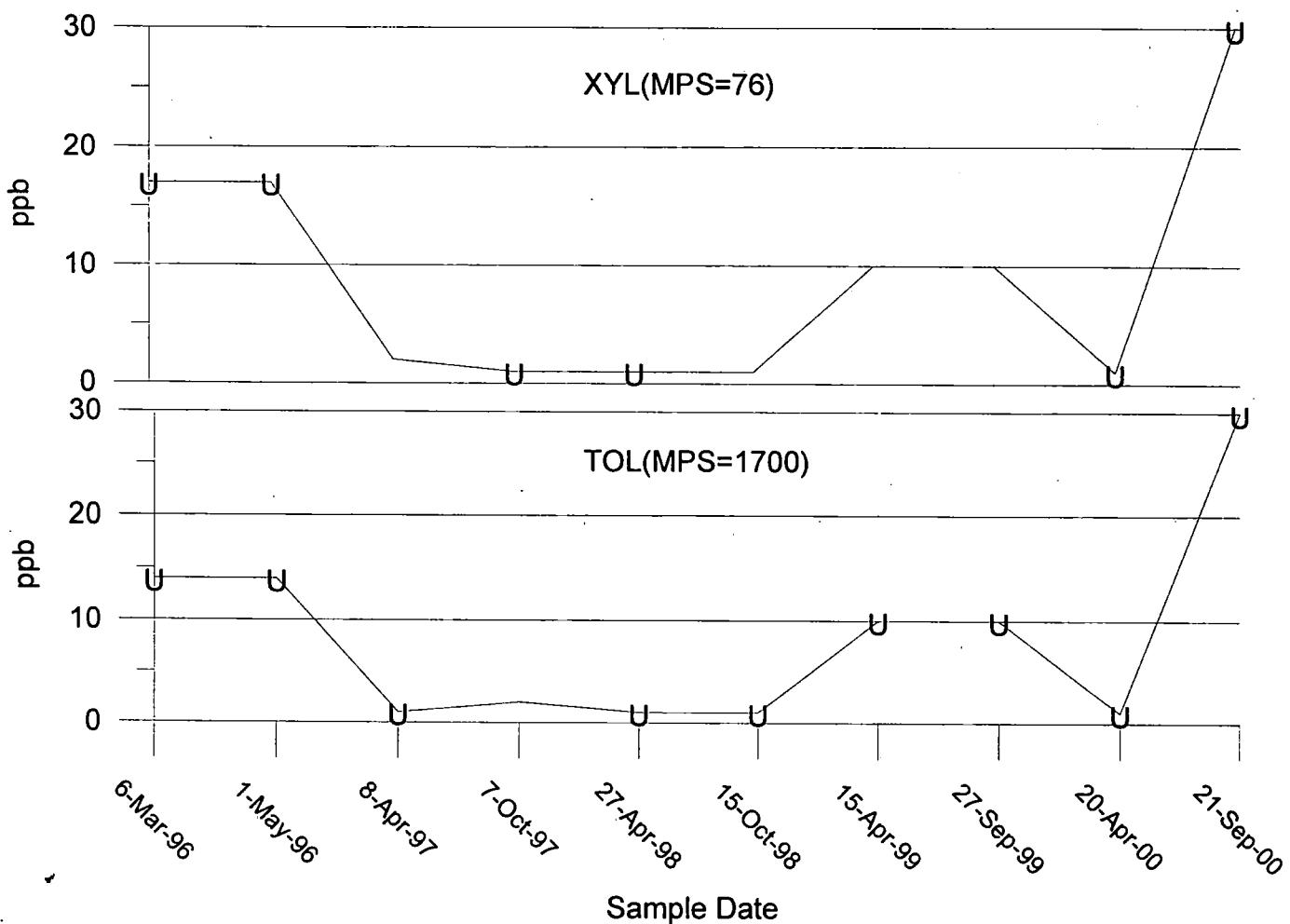
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-036S
Along Bulkhead

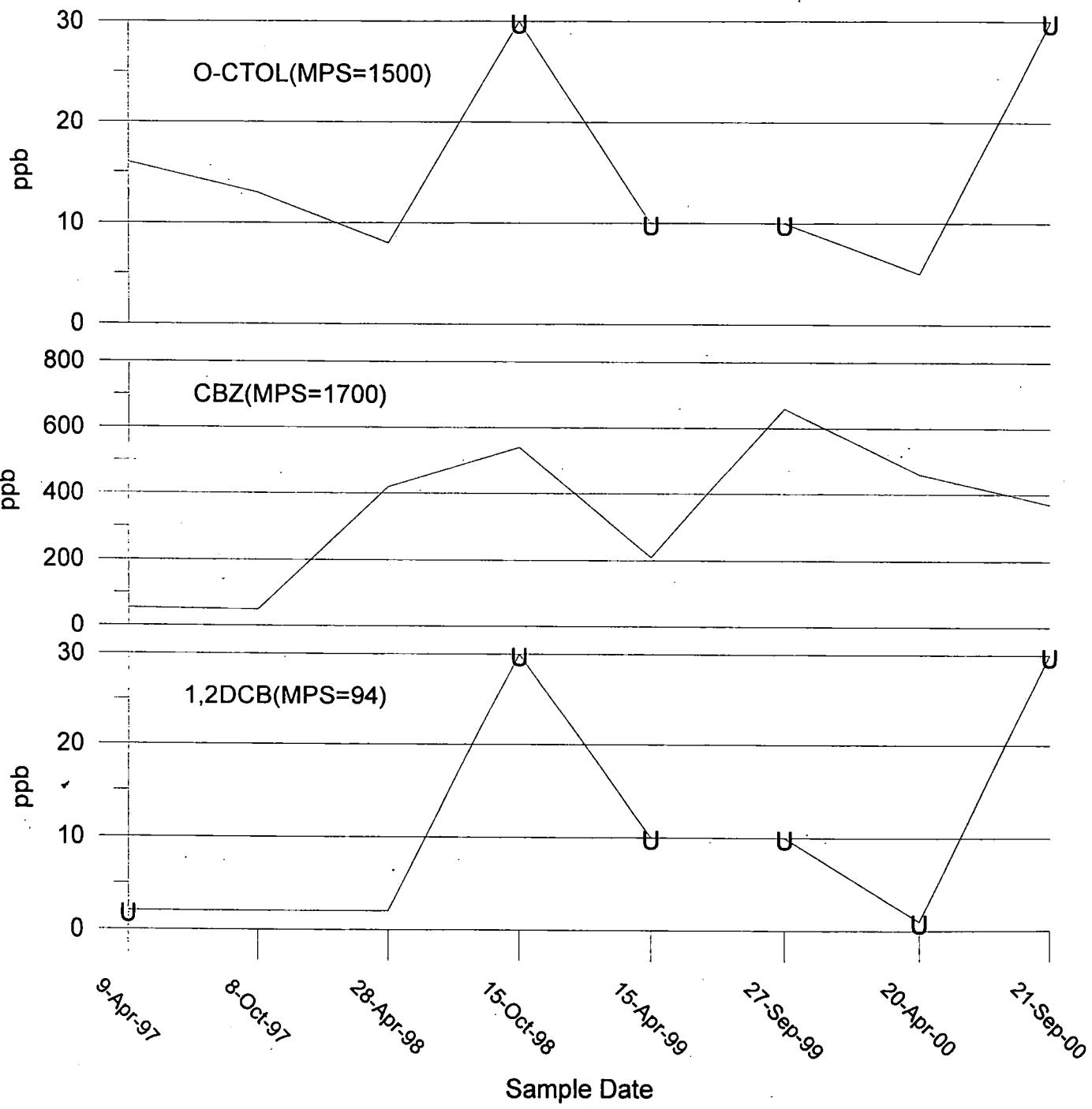
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-037S
Along Bulkhead

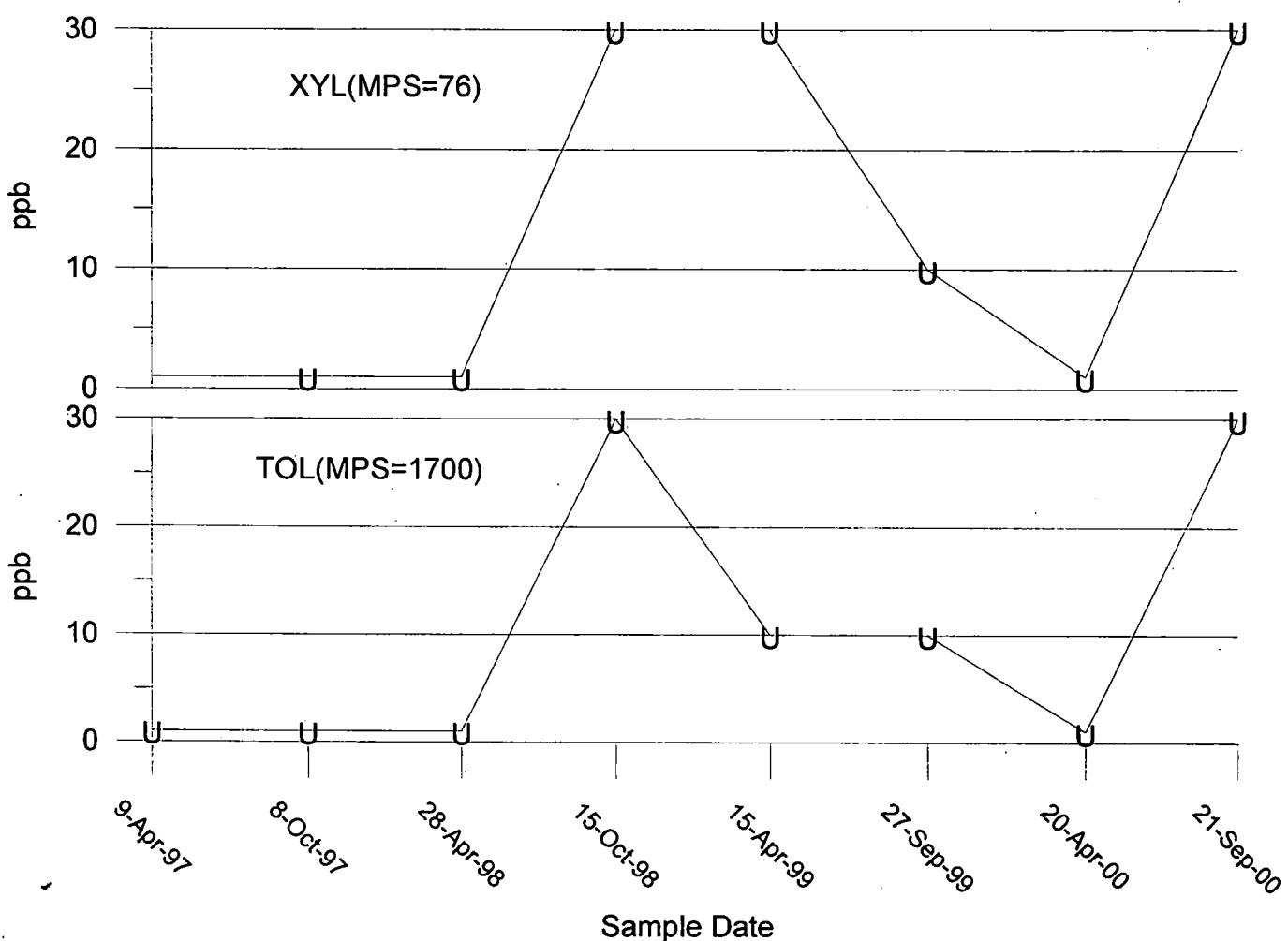
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-037S
Along Bulkhead

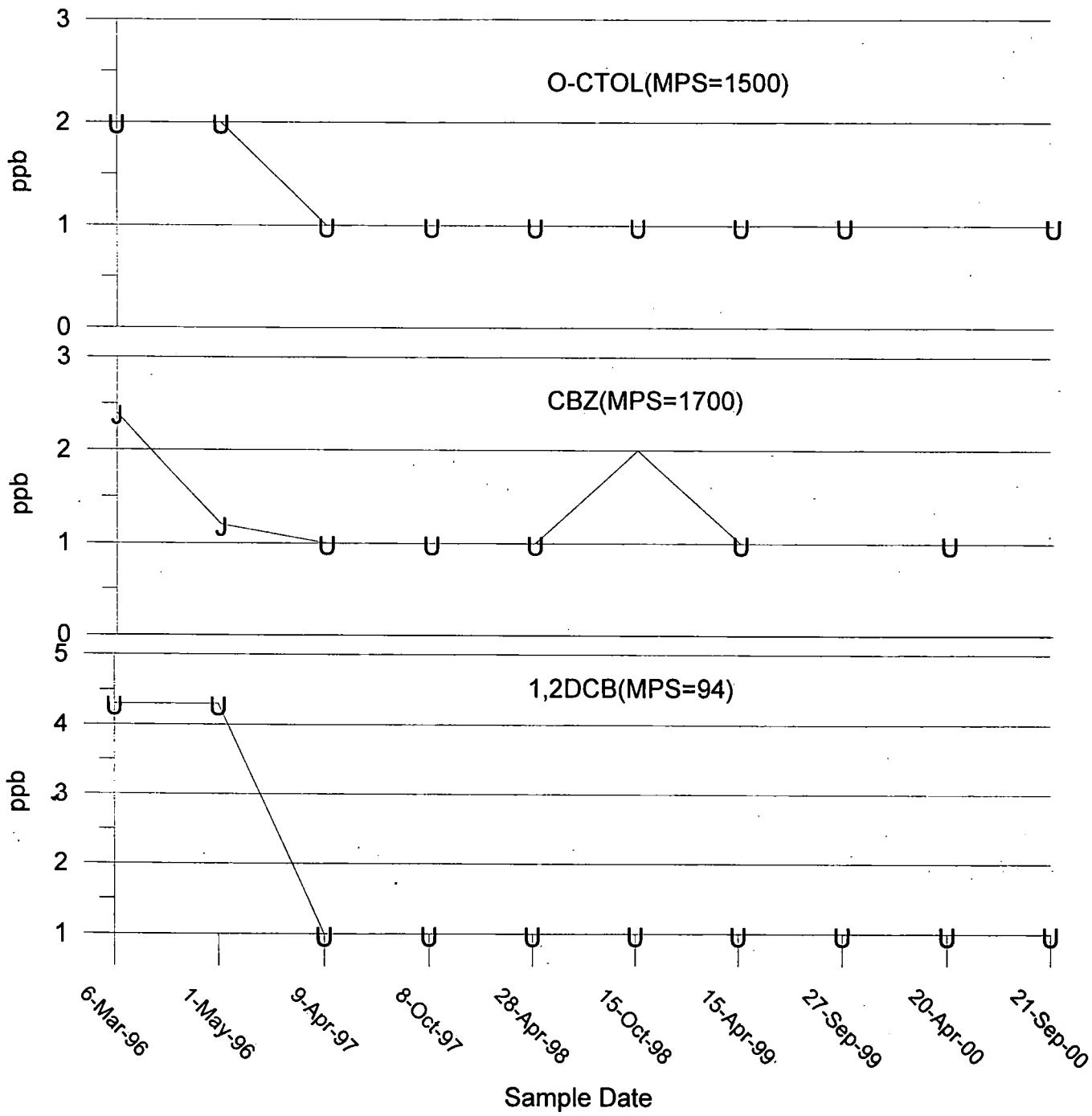
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semianual Monitoring

Well P-038S
Along Bulkhead

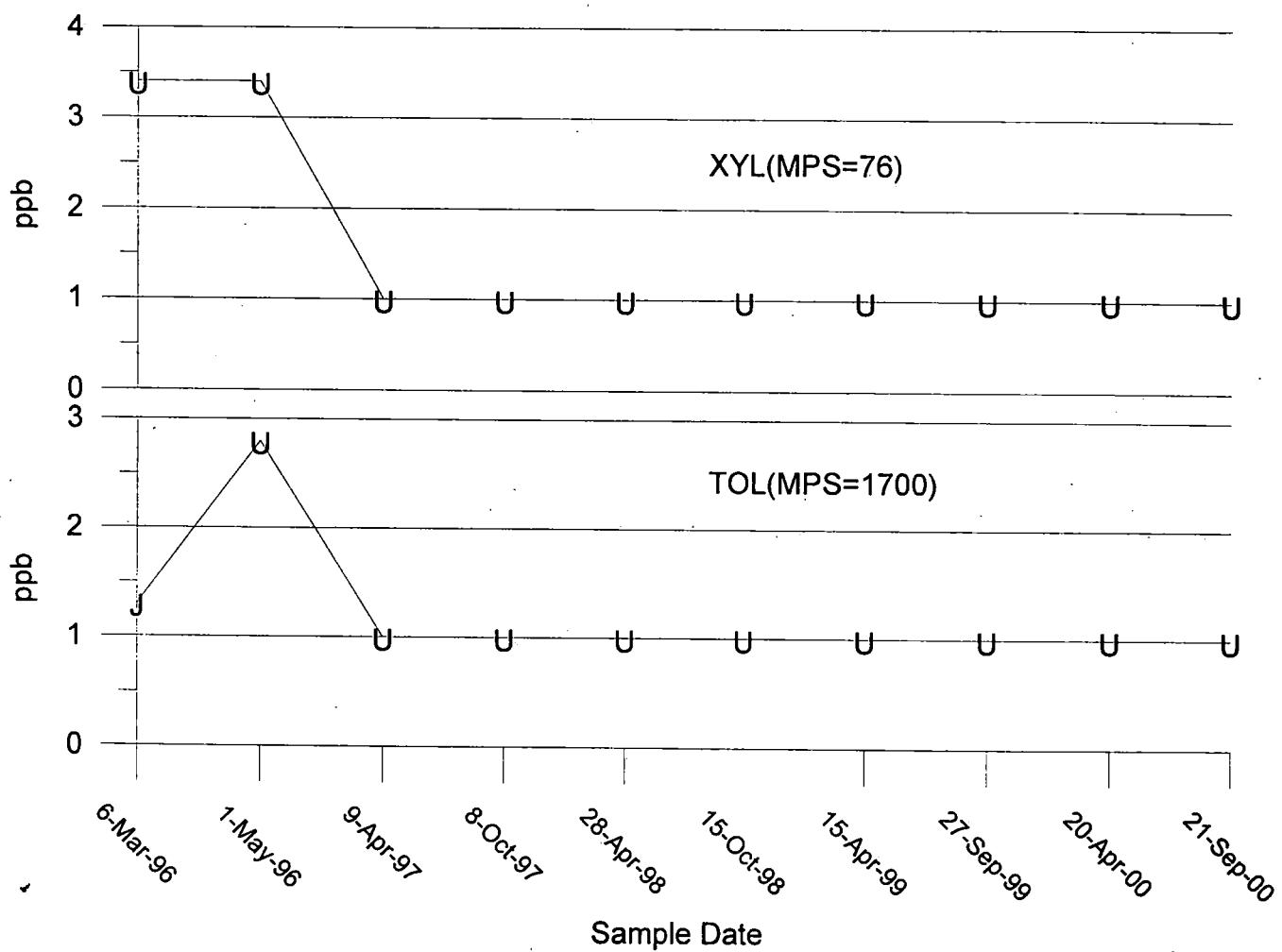
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-038S
Along Bulkhead

"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



APPENDIX E
TIME-SERIES GRAPHS
FOR
IN-RIVER WELLS

Table 5
IN-RIVER WELLS
Cumulative Results for Chemicals Of Concern
(Units in ppb)

| Well No. | Date Sampled | 1,2-Dichloro-benzene | Chloro-benzene | o-Chloro-toluene | Toluene | Xylenes |
|----------|--------------|----------------------|----------------|------------------|---------|---------|
| MPS | | 94 | 1700 | 1500 | 1700 | 76 |
| SW-110 | 6-Mar-96 | 54 | 1600 | 55 | 460 | 34 U |
| SW-110 | 2-May-96 | 63 J | 1600 | 40 U | 220 | 68 U |
| SW-110 | 10-Apr-97 | 23 | 110 | 1 | 62 | 8 |
| SW-110 | 8-Oct-97 | 1 U | 1 U | 1 U | 1 U | 1 U |
| SW-110 | 27-Apr-98 | 21 | 1100 | 2 | 170 | 6 |
| SW-110 | 15-Oct-98 | 100 U | 440 | 100 U | 100 U | 100 U |
| SW-110 | 15-Apr-99 | 50 U | 670 | 50 U | 50 U | 50 U |
| SW-110 | 27-Sep-99 | 40 U | 40 U | 40 U | 40 U | 40 U |
| SW-110 | 27-Sep-99 | 40 U | 40 U | 40 U | 40 U | 40 U |
| SW-110 | 20-Apr-00 | 47 | 20 U | 91 | 380 | 20 U |
| SW-110 | 21-Sep-00 | 100 U | 2000 | 100 U | 820 | 100 U |
| SW-120 | 5-Mar-96 | 4.3 U | 63 | 2 U | 2.8 U | 3.4 U |
| SW-120 | 30-Apr-96 | 4.3 U | 70 | 2 U | 2.8 U | 3.4 U |
| SW-120 | 8-Apr-97 | 1 U | 43 | 1 U | 1 U | 1 U |
| SW-120 | 7-Oct-97 | 1 | 39 | 39 | 31 | 2 |
| SW-120 | 27-Apr-98 | 1 U | 54 | 1 U | 1 U | 1 U |
| SW-120 | 15-Oct-98 | 1 U | 36 | 1 U | 1 U | 1 U |
| SW-120 | 15-Apr-99 | 10 U | 92 | 10 U | 10 U | 10 U |
| SW-120 | 27-Sep-99 | 10 U | 68 | 10 U | 10 U | 10 U |
| SW-120 | 20-Apr-00 | 1 U | 67 | 1 U | 1 U | 1 U |
| SW-120 | 21-Sep-00 | 9100 | 500 U | 500 U | 500 U | 500 U |
| SW-130 | 6-Mar-96 | 4.3 U | 3 U | 6.5 | 2.8 U | 3.4 U |
| SW-130 | 1-May-96 | 4.3 U | 3 U | 12 | 2.8 U | 3.4 U |
| SW-130 | 9-Apr-97 | 1 U | 1 | 12 | 1 U | 1 U |
| SW-130 | 7-Oct-97 | 1 U | 1 U | 2 | 1 U | 1 U |
| SW-130 | 27-Apr-98 | 1 U | 27 | 14 | 1 U | 1 U |
| SW-130 | 15-Oct-98 | 1 U | 1 U | 1 | 1 U | 1 U |
| SW-130 | 15-Apr-99 | 1 U | 5 | 5 | 1 U | 1 U |
| SW-130 | 27-Sep-99 | 1 U | 1 | 2 | 1 U | 1 U |
| SW-130 | 20-Apr-00 | 1 | 10 | 30 | 1 U | 1 |
| SW-130 | 21-Sep-00 | 5 U | 5 U | 5 U | 5 U | 5 U |

MPS = Media Protection Standard

U = Nondetect with detection limit given

J = Estimated value

1,2 Dichlorobenzene MPS=94 PPB

Chlorobenzene MPS=1700 PPB

o-chlorotoluene MPS=1500 ppb

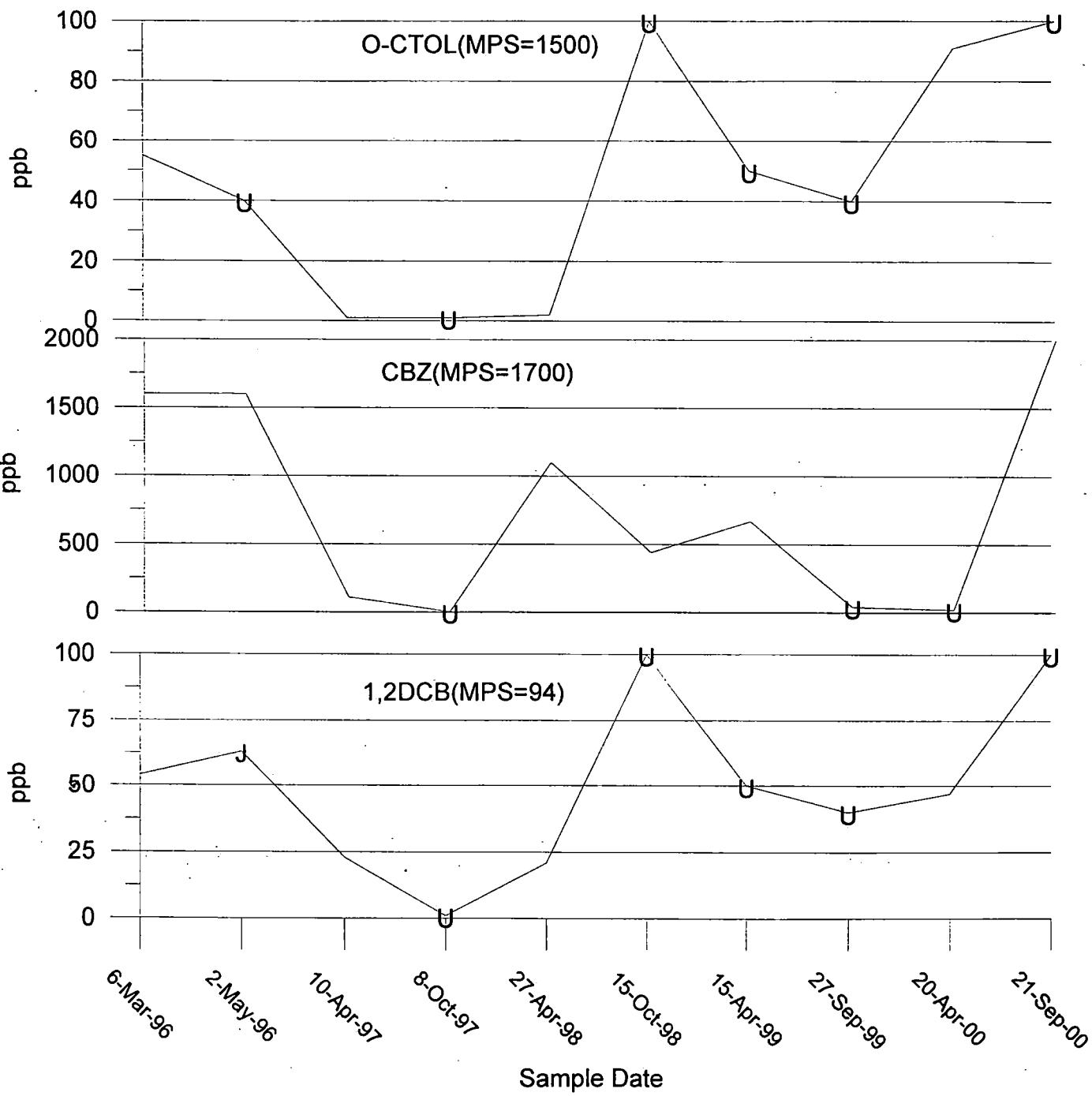
toluene MPS=1700 ppb

xylenes MPS=76 ppb

Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-110
In-River Wells

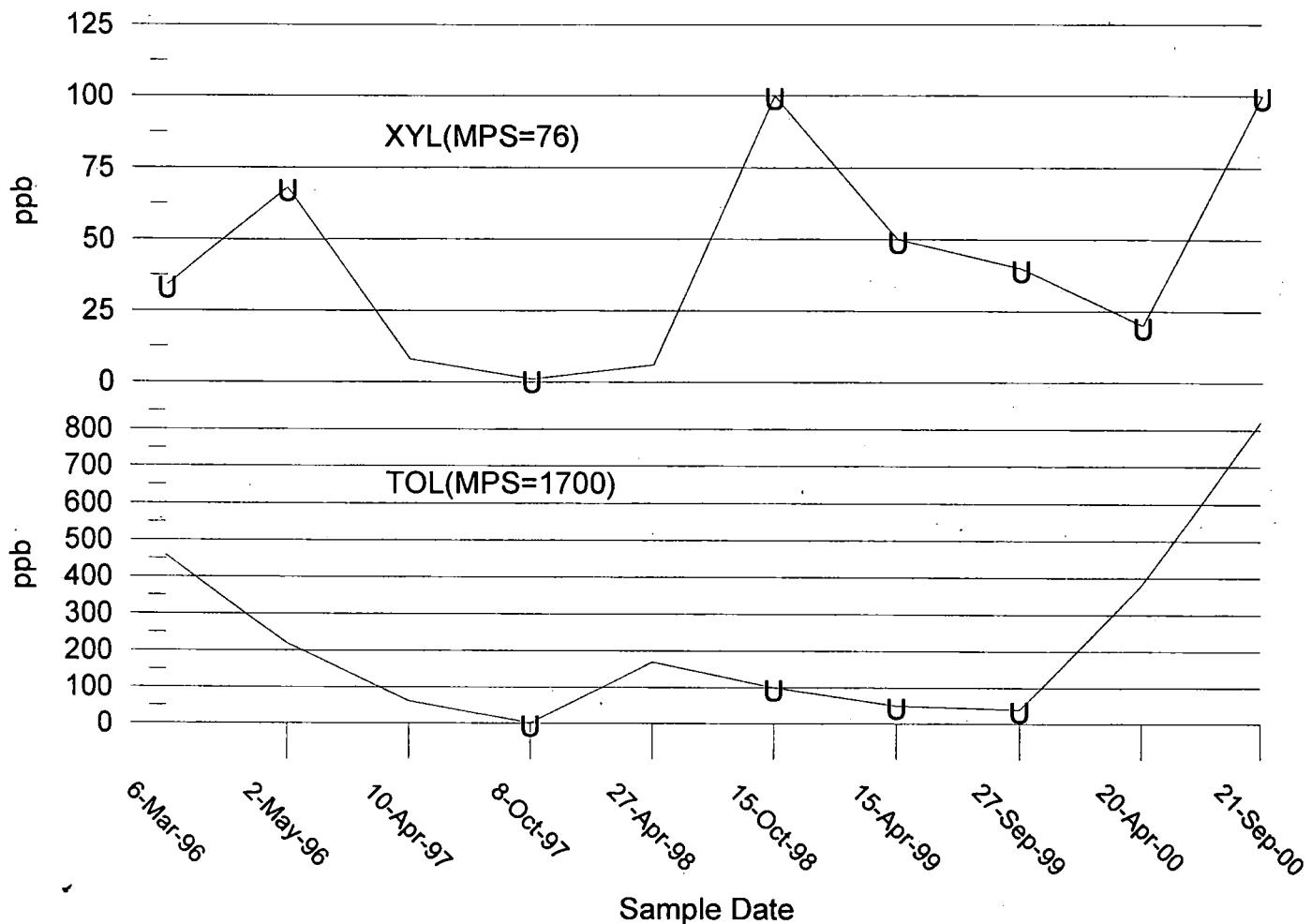
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-110
In-River Well

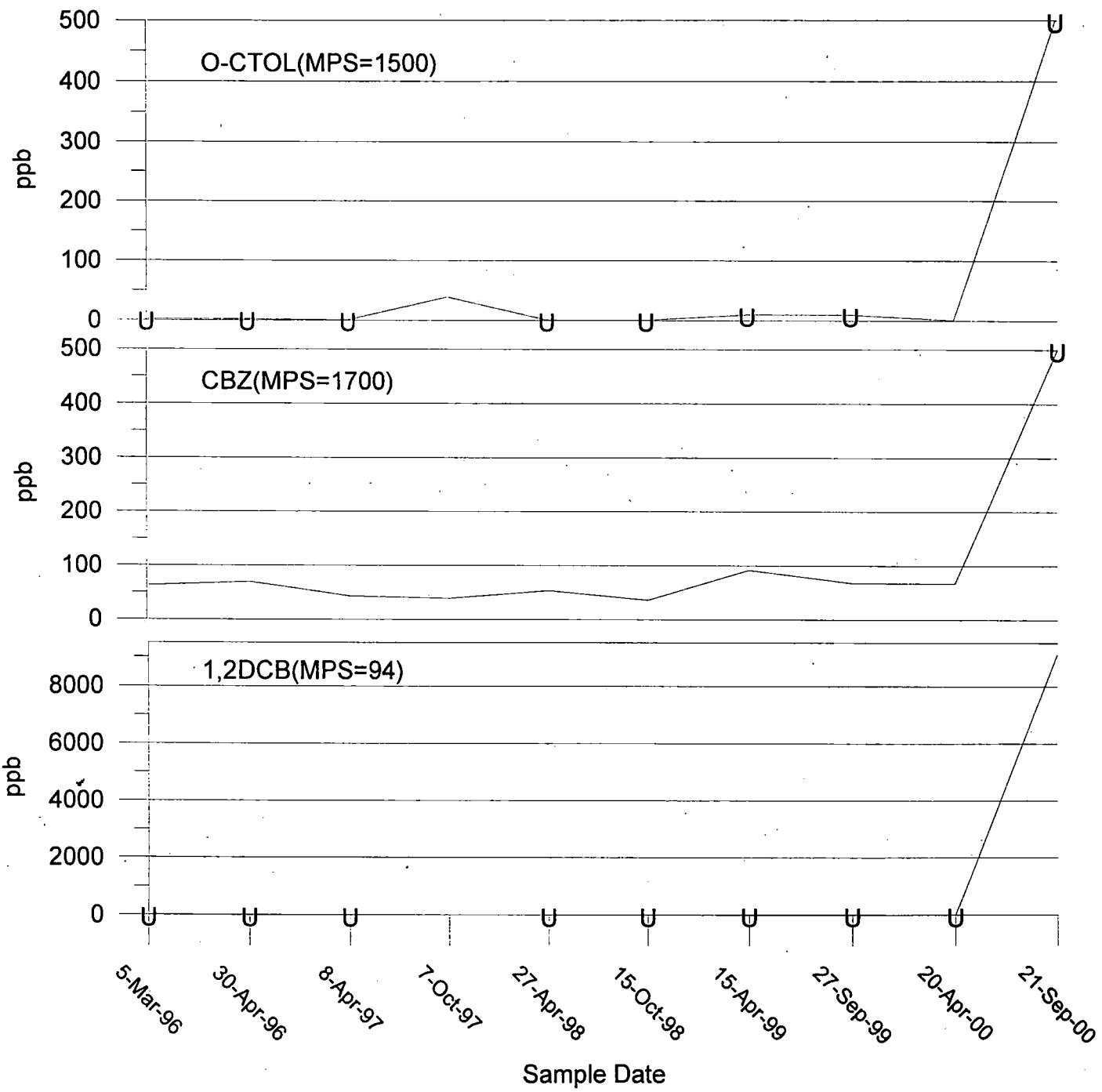
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-120
In-River Well

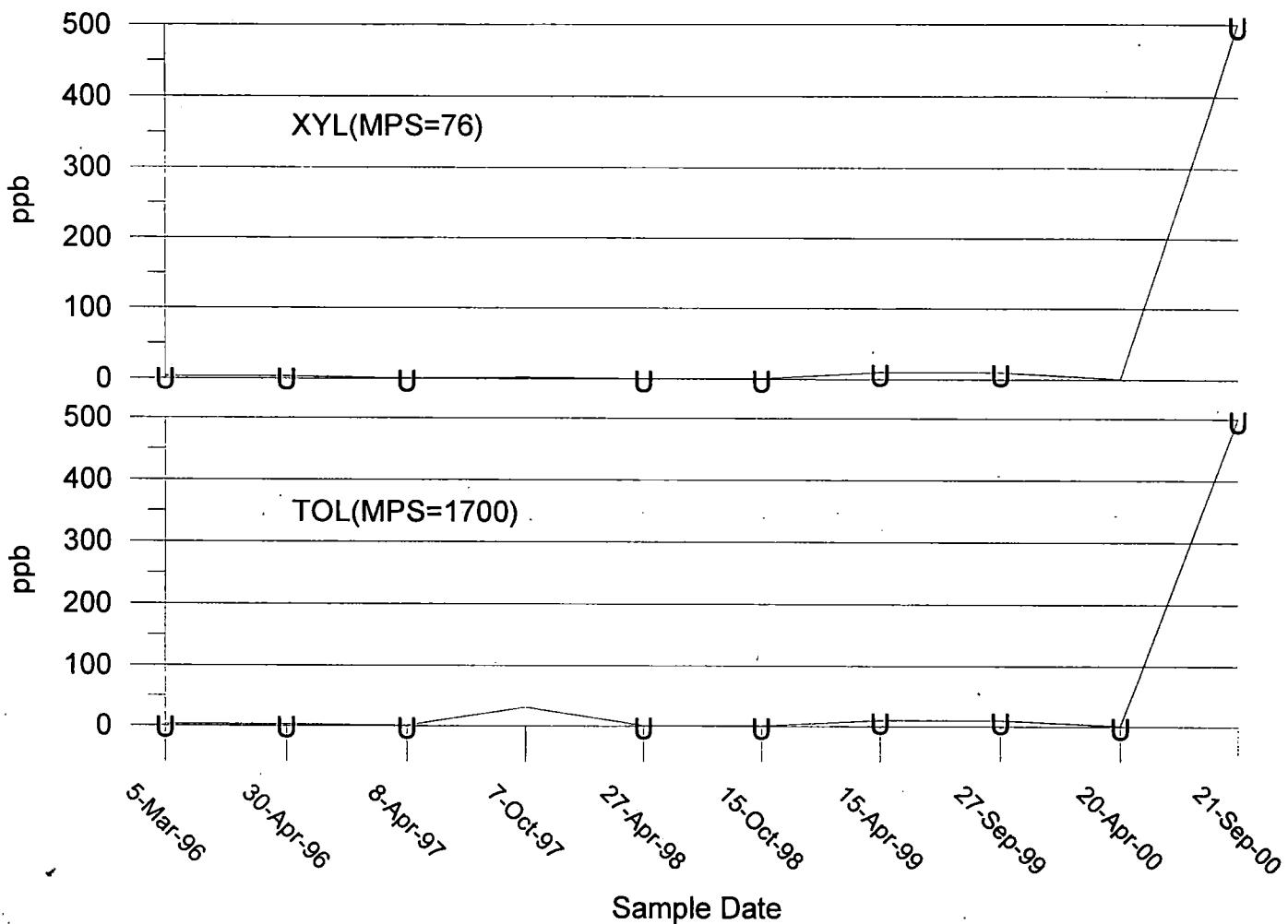
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-120
In-River Well

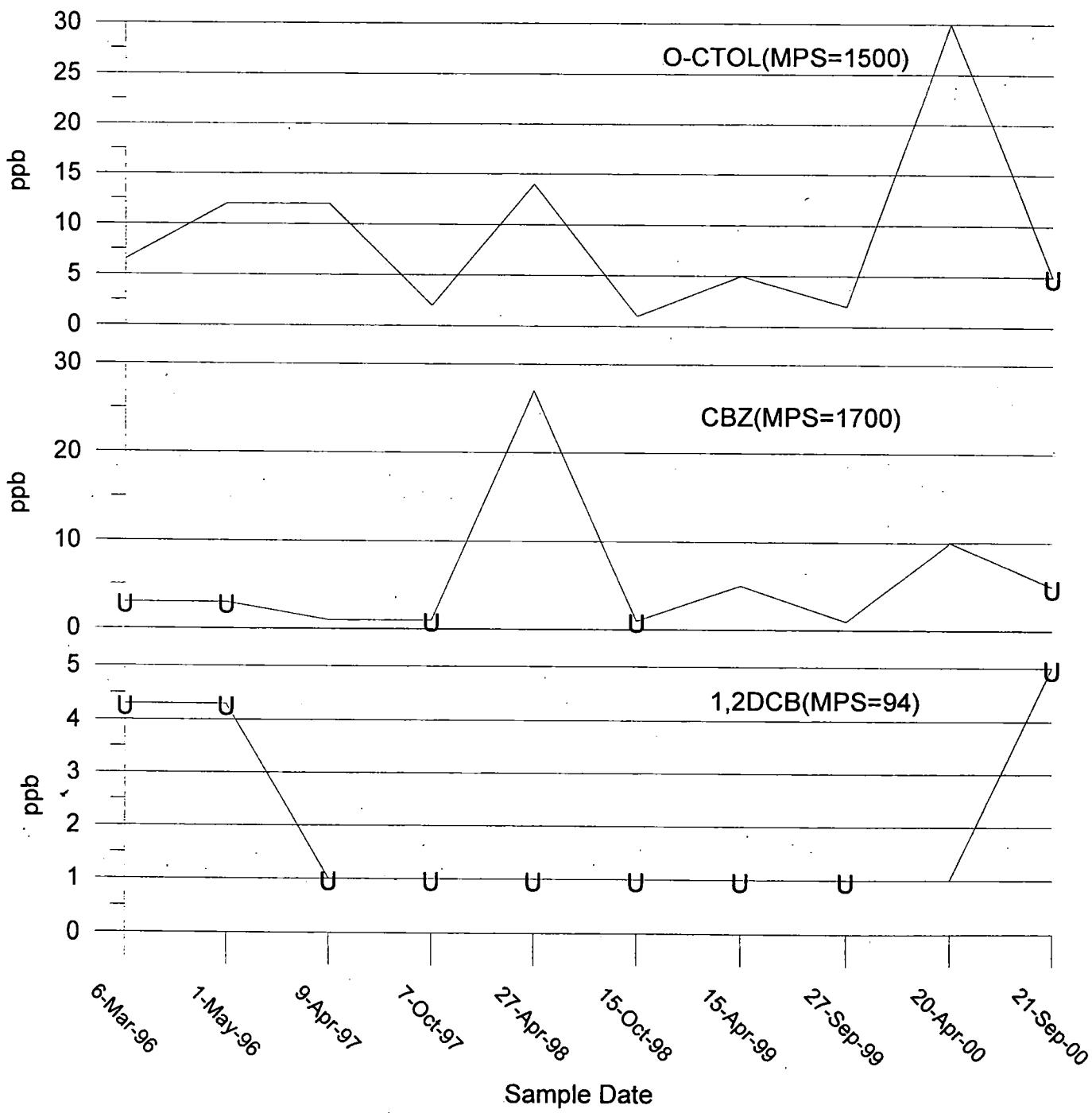
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-130
In-River Well

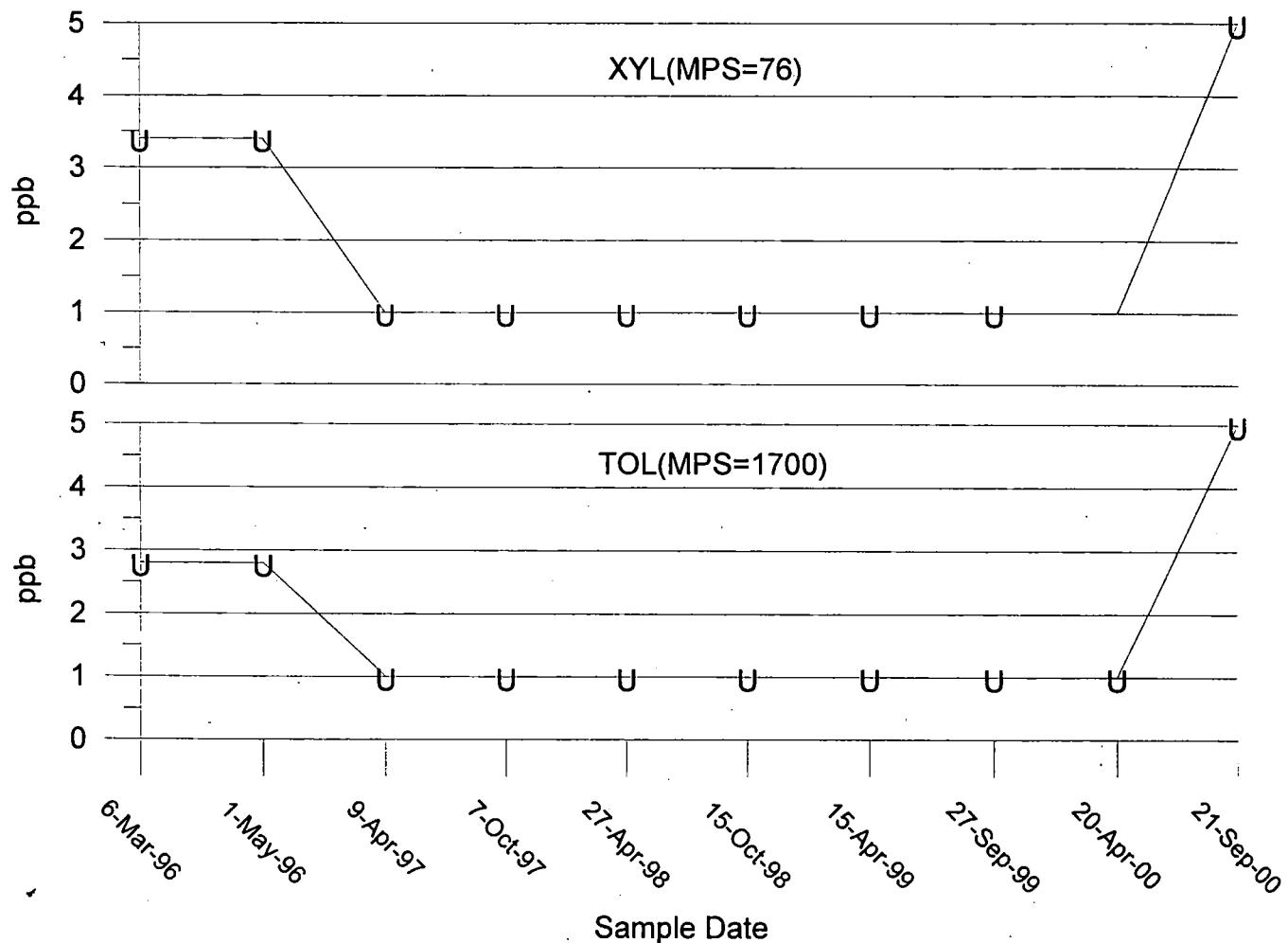
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-130
In-River Well

"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.

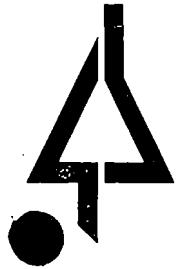


APPENDIX F

R.I. ANALYTICAL LETTER

FOR

REPORTING ELEVATED DETECTION LIMITS



R.I. Analytical

Specialists in Environmental Services

January 22, 2001

Ciba Specialty Chemicals Corp.
Attn: Mr. Barry Cohen
Environmental Building #743
Rout 37 West
Toms River, NJ 08754

Dear Mr. Cohen:

As per your inquiry through our Vice President James Mich, a review was requested for Work Order 0009-11589(-001,-002,-003,-008 and -011). The Work Order consisted of the 180 Mill Street Cranston RI Monitoring Well samples. The detection limits for five analytes are in question for method SW-846 8240. The error that occurred in reporting the elevated detection limits is that the samples were analyzed at several dilutions. RIAL has hired a new analyst who took the initiative to check the dilution factors of the historical data and analyzed the samples using those dilution factors. The needed detection limits were unknown to the staff member at that time, in addition the samples were analyzed on new equipment which the analyst were afraid of contaminating.

The results for the above noted samples will stand as reported. They were reported at the dilution due to high levels of target compounds and concerns for contaminating the GC/MS instrumentation.

RIAL sample 0009-11589-005 MW-01s grab 09/21/01 was reported at a detection limit of 1.0 ug/l but should have reported at 250x(250 ug/l). Therefore, this sample's detection limit is too high also.

RIAL sample 0009-11589-019 PW-130 grab 09/21/01 @1120 was reported at a detection limit of 1.0 ug/l but should have reported at 10 ug/l. These corrected detection limits are still below the needed requirements.

The reports are being altered to reflect these changes.

R.I Analytical would like to offer its services in re-sampling and analyzing the analysis for the wells that are out of compliance at no cost.

If you have any further questions, please contact me.

January 22, 2001

Sincerely,



Michael J. Hobin
Quality Control Coordinator

Cc: James E. Mich Vice President of Operations
Cc: Debra Jardin Customer Service